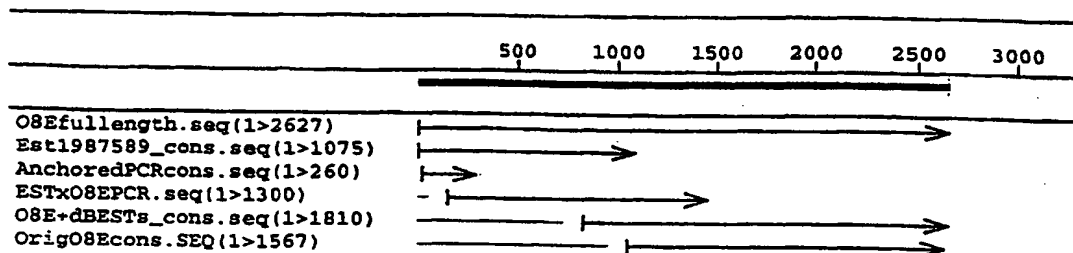




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(54) Title: COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER

**(57) Abstract**

Compositions and methods for the therapy and diagnosis of cancer, such as ovarian cancer, are disclosed. Compositions may comprise one or more ovarian carcinoma proteins, immunogenic portions thereof, polynucleotides that encode such portions or antibodies or immune system cells specific for such proteins. Such compositions may be used, for example, for the prevention and treatment of diseases such as ovarian cancer. Methods are further provided for identifying tumor antigens that are secreted from ovarian carcinomas and/or other tumors. Polypeptides and polynucleotides as provided herein may further be used for the diagnosis and monitoring of ovarian cancer.

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COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER

TECHNICAL FIELD

The present invention relates generally to ovarian cancer therapy. The invention is more specifically related to polypeptides comprising at least a portion of an ovarian carcinoma protein, and to polynucleotides encoding such polypeptides, as well as antibodies and immune system cells that specifically recognize such polypeptides. Such polypeptides, polynucleotides, antibodies and cells may be used in vaccines and pharmaceutical compositions for treatment of ovarian cancer.

10 BACKGROUND OF THE INVENTION

Ovarian cancer is a significant health problem for women in the United States and throughout the world. Although advances have been made in detection and therapy of this cancer, no vaccine or other universally successful method for prevention or treatment is currently available. Management of the disease currently relies on a combination of early diagnosis and aggressive treatment, which may include one or more of a variety of treatments such as surgery, radiotherapy, chemotherapy and hormone therapy. The course of treatment for a particular cancer is often selected based on a variety of prognostic parameters, including an analysis of specific tumor markers. However, the use of established markers often leads to a result that is difficult to interpret, and high mortality continues to be observed in many cancer patients.

Immunotherapies have the potential to substantially improve cancer treatment and survival. Such therapies may involve the generation or enhancement of an immune response to an ovarian carcinoma antigen. However, to date, relatively few ovarian carcinoma antigens are known and the generation of an immune response against such antigens has not been shown to be therapeutically beneficial.

Accordingly, there is a need in the art for improved methods for identifying ovarian tumor antigens and for using such antigens in the therapy of ovarian cancer. The present invention fulfills these needs and further provides other related advantages.

SUMMARY OF THE INVENTION

Briefly stated, this invention provides compositions and methods for the therapy of cancer, such as ovarian cancer. In one aspect, the present invention provides polypeptides comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished. Within certain embodiments, the ovarian carcinoma protein comprises a sequence that is encoded by a polynucleotide sequence selected from the group consisting of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387, 391 and complements of such polynucleotides.

The present invention further provides polynucleotides that encode a polypeptide as described above or a portion thereof, expression vectors comprising such polynucleotides and host cells transformed or transfected with such expression vectors.

Within other aspects, the present invention provides pharmaceutical compositions and vaccines. Pharmaceutical compositions may comprise a physiologically acceptable carrier or excipient in combination with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; (ii) a polynucleotide encoding such a polypeptide; (iii) an antibody that specifically binds to such a polypeptide; (iv) an antigen-presenting cell that expresses such a polypeptide and/or (v) a T cell that specifically reacts with such a polypeptide. Vaccines may comprise a non-specific immune response enhancer in combination with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a

polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; (ii) a polynucleotide encoding such a polypeptide; (iii) an anti-idiotypic antibody that is specifically bound by an antibody that specifically binds to such a polypeptide; (iv) an antigen-presenting cell that expresses such a polypeptide and/or (v) a T cell that specifically reacts with such a polypeptide.

The present invention further provides, in other aspects, fusion proteins that comprise at least one polypeptide as described above, as well as polynucleotides encoding such fusion proteins.

Within related aspects, pharmaceutical compositions comprising a fusion protein or polynucleotide encoding a fusion protein in combination with a physiologically acceptable carrier are provided.

Vaccines are further provided, within other aspects, comprising a fusion protein or polynucleotide encoding a fusion protein in combination with a non-specific immune response enhancer.

Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a patient a pharmaceutical composition or vaccine as recited above.

The present invention further provides, within other aspects, methods for stimulating and/or expanding T cells, comprising contacting T cells with (a) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-387 or 391; (b) a polynucleotide encoding such a polypeptide and/or (c) an antigen presenting cell that expresses such a polypeptide under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells. Such polypeptide, polynucleotide and/or antigen presenting cell(s) may be present within a pharmaceutical composition or vaccine, for use in stimulating and/or expanding T cells in a mammal.

Within other aspects, the present invention provides methods for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient T cells prepared as described above.

Within further aspects, the present invention provides methods for inhibiting the development of ovarian cancer in a patient, comprising the steps of: (a) incubating CD4⁺ and/or CD8⁺ T cells isolated from a patient with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs: 1-387 or 391; (ii) a polynucleotide encoding such a polypeptide; or (iii) an antigen-presenting cell that expresses such a polypeptide; such that T cells proliferate; and (b) administering to the patient an effective amount of the proliferated T cells, and thereby inhibiting the development of ovarian cancer in the patient. The proliferated cells may be cloned prior to administration to the patient.

The present invention also provides, within other aspects, methods for identifying secreted tumor antigens. Such methods comprise the steps of: (a) implanting tumor cells in an immunodeficient mammal; (b) obtaining serum from the immunodeficient mammal after a time sufficient to permit secretion of tumor antigens into the serum; (c) immunizing an immunocompetent mammal with the serum; (d) obtaining antiserum from the immunocompetent mammal; and (e) screening a tumor expression library with the antiserum, and therefrom identifying a secreted tumor antigen. A preferred method for identifying a secreted ovarian carcinoma antigen comprises the steps of: (a) implanting ovarian carcinoma cells in a SCID mouse; (b) obtaining serum from the SCID mouse after a time sufficient to permit secretion of ovarian carcinoma antigens into the serum; (c) immunizing an immunocompetent mouse with the serum; (d) obtaining antiserum from the immunocompetent mouse; and (e) screening an ovarian carcinoma expression library with the antiserum, and therefrom identifying a secreted ovarian carcinoma antigen.

These and other aspects of the present invention will become apparent upon reference to the following detailed description and attached drawings. All references disclosed herein are hereby incorporated by reference in their entirety as if each was incorporated individually.

5 BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1A-1S (SEQ ID NOs:1-71) depict partial sequences of polynucleotides encoding representative secreted ovarian carcinoma antigens.

Figures 2A-2C depict full insert sequences for three of the clones of Figure 1. Figure 2A shows the sequence designated O7E (11731; SEQ ID NO:72),
10 Figure 2B shows the sequence designated O9E (11785; SEQ ID NO:73) and Figure 2C shows the sequence designated O8E (13695; SEQ ID NO:74).

Figure 3 presents results of microarray expression analysis of the ovarian carcinoma sequence designated O8E.

Figure 4 presents a partial sequence of a polynucleotide (designated 3g;
15 SEQ ID NO:75) encoding an ovarian carcinoma sequence that is a splice fusion between the human T-cell leukemia virus type I oncoprotein TAX and osteonectin.

Figure 5 presents the ovarian carcinoma polynucleotide designated 3f (SEQ ID NO:76).

Figure 6 presents the ovarian carcinoma polynucleotide designated 6b
20 (SEQ ID NO:77).

Figures 7A and 7B present the ovarian carcinoma polynucleotides designated 8e (SEQ ID NO:78) and 8h (SEQ ID NO:79).

Figure 8 presents the ovarian carcinoma polynucleotide designated 12c (SEQ ID NO:80).

Figure 9 presents the ovarian carcinoma polynucleotide designated 12h
25 (SEQ ID NO:81).

Figure 10 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 3f.

Figure 11 depicts results of microarray expression analysis of the ovarian
30 carcinoma sequence designated 6b.

Figure 12 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 8e.

Figure 13 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 12c.

5 Figure 14 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 12h.

Figures 15A-15EEE depict partial sequences of additional polynucleotides encoding representative secreted ovarian carcinoma antigens (SEQ ID NOs:82-310).

10 Figure 16 is a diagram illustrating the location of various partial O8E sequences within the full length sequence.

DETAILED DESCRIPTION OF THE INVENTION

As noted above, the present invention is generally directed to compositions and methods for the therapy of cancer, such as ovarian cancer. The
15 compositions described herein may include immunogenic polypeptides, polynucleotides encoding such polypeptides, binding agents such as antibodies that bind to a polypeptide, antigen presenting cells (APCs) and/or immune system cells (*e.g.*, T cells).

Polypeptides of the present invention generally comprise at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof. Certain
20 ovarian carcinoma proteins have been identified using an immunoassay technique, and are referred to herein as ovarian carcinoma antigens. An "ovarian carcinoma antigen" is a protein that is expressed by ovarian tumor cells (preferably human cells) at a level that is at least two fold higher than the level in normal ovarian cells. Certain ovarian carcinoma antigens react detectably (within an immunoassay, such as an ELISA or
25 Western blot) with antisera generated against serum from an immunodeficient animal implanted with a human ovarian tumor. Such ovarian carcinoma antigens are shed or secreted from an ovarian tumor into the sera of the immunodeficient animal. Accordingly, certain ovarian carcinoma antigens provided herein are secreted antigens. Certain nucleic acid sequences of the subject invention generally comprise a DNA or

RNA sequence that encodes all or a portion of such a polypeptide, or that is complementary to such a sequence.

The present invention further provides ovarian carcinoma sequences that are identified using techniques to evaluate altered expression within an ovarian tumor.

5 Such sequences may be polynucleotide or protein sequences. Ovarian carcinoma sequences are generally expressed in an ovarian tumor at a level that is at least two fold, and preferably at least five fold, greater than the level of expression in normal ovarian tissue, as determined using a representative assay provided herein. Certain partial ovarian carcinoma polynucleotide sequences are presented herein. Proteins encoded by

10 genes comprising such polynucleotide sequences (or complements thereof) are also considered ovarian carcinoma proteins.

Antibodies are generally immune system proteins, or antigen-binding fragments thereof, that are capable of binding to at least a portion of an ovarian carcinoma polypeptide as described herein. T cells that may be employed within the

15 compositions provided herein are generally T cells (*e.g.*, CD4⁺ and/or CD8⁺) that are specific for such a polypeptide. Certain methods described herein further employ antigen-presenting cells (such as dendritic cells or macrophages) that express an ovarian carcinoma polypeptide as provided herein.

20 OVARIAN CARCINOMA POLYNUCLEOTIDES

Any polynucleotide that encodes an ovarian carcinoma protein or a portion or other variant thereof as described herein is encompassed by the present invention. Preferred polynucleotides comprise at least 15 consecutive nucleotides, preferably at least 30 consecutive nucleotides, and more preferably at least 45

25 consecutive nucleotides, that encode a portion of an ovarian carcinoma protein. More preferably, a polynucleotide encodes an immunogenic portion of an ovarian carcinoma protein, such as an ovarian carcinoma antigen. Polynucleotides complementary to any such sequences are also encompassed by the present invention. Polynucleotides may be single-stranded (coding or antisense) or double-stranded, and may be DNA (genomic,

30 cDNA or synthetic) or RNA molecules. Additional coding or non-coding sequences may, but need not, be present within a polynucleotide of the present invention, and a

polynucleotide may, but need not, be linked to other molecules and/or support materials.

Polynucleotides may comprise a native sequence (*i.e.*, an endogenous sequence that encodes an ovarian carcinoma protein or a portion thereof) or may
5 comprise a variant of such a sequence. Polynucleotide variants may contain one or more substitutions, additions, deletions and/or insertions such that the immunogenicity of the encoded polypeptide is not diminished, relative to a native ovarian carcinoma protein. The effect on the immunogenicity of the encoded polypeptide may generally be assessed as described herein. Variants preferably exhibit at least about 70% identity,
10 more preferably at least about 80% identity and most preferably at least about 90% identity to a polynucleotide sequence that encodes a native ovarian carcinoma protein or a portion thereof.

The percent identity for two polynucleotide or polypeptide sequences may be readily determined by comparing sequences using computer algorithms well
15 known to those of ordinary skill in the art, such as Megalign, using default parameters. Comparisons between two sequences are typically performed by comparing the sequences over a comparison window to identify and compare local regions of sequence similarity. A "comparison window" as used herein, refers to a segment of at least about 20 contiguous positions, usually 30 to about 75, or 40 to about 50, in which a sequence
20 may be compared to a reference sequence of the same number of contiguous positions after the two sequences are optimally aligned. Optimal alignment of sequences for comparison may be conducted, for example, using the Megalign program in the Lasergene suite of bioinformatics software (DNASTAR, Inc., Madison, WI), using default parameters. Preferably, the percentage of sequence identity is determined by
25 comparing two optimally aligned sequences over a window of comparison of at least 20 positions, wherein the portion of the polynucleotide or polypeptide sequence in the window may comprise additions or deletions (*i.e.*, gaps) of 20 % or less, usually 5 to 15 %, or 10 to 12%, relative to the reference sequence (which does not contain additions or deletions). The percent identity may be calculated by determining the number of
30 positions at which the identical nucleic acid bases or amino acid residue occurs in both sequences to yield the number of matched positions, dividing the number of matched

positions by the total number of positions in the reference sequence (*i.e.*, the window size) and multiplying the results by 100 to yield the percentage of sequence identity.

Variants may also, or alternatively, be substantially homologous to a native gene, or a portion or complement thereof. Such polynucleotide variants are
5 capable of hybridizing under moderately stringent conditions to a naturally occurring DNA sequence encoding a native ovarian carcinoma protein (or a complementary sequence). Suitable moderately stringent conditions include prewashing in a solution of 5 X SSC, 0.5% SDS, 1.0 mM EDTA (pH 8.0); hybridizing at 50°C-65°C, 5 X SSC, overnight; followed by washing twice at 65°C for 20 minutes with each of 2X, 0.5X and
10 0.2X SSC containing 0.1% SDS.

It will be appreciated by those of ordinary skill in the art that, as a result of the degeneracy of the genetic code, there are many nucleotide sequences that encode a polypeptide as described herein. Some of these polynucleotides bear minimal homology to the nucleotide sequence of any native gene. Nonetheless, polynucleotides
15 that vary due to differences in codon usage are specifically contemplated by the present invention. Further, alleles of the genes comprising the polynucleotide sequences provided herein are within the scope of the present invention. Alleles are endogenous genes that are altered as a result of one or more mutations, such as deletions, additions and/or substitutions of nucleotides. The resulting mRNA and protein may, but need
20 not, have an altered structure or function. Alleles may be identified using standard techniques (such as hybridization, amplification and/or database sequence comparison).

Polynucleotides may be prepared using any of a variety of techniques. For example, an ovarian carcinoma polynucleotide may be identified, as described in more detail below, by screening a late passage ovarian tumor expression library with
25 antisera generated against sera of immunocompetent mice after injection of such mice with sera from SCID mice implanted with late passage ovarian tumors. Ovarian carcinoma polynucleotides may also be identified using any of a variety of techniques designed to evaluate differential gene expression. Alternatively, polynucleotides may be amplified from cDNA prepared from ovarian tumor cells. Such polynucleotides may
30 be amplified via polymerase chain reaction (PCR). For this approach, sequence-specific

primers may be designed based on the sequences provided herein, and may be purchased or synthesized.

An amplified portion may be used to isolate a full length gene from a suitable library (e.g., an ovarian carcinoma cDNA library) using well known techniques.

5 Within such techniques, a library (cDNA or genomic) is screened using one or more polynucleotide probes or primers suitable for amplification. Preferably, a library is size-selected to include larger molecules. Random primed libraries may also be preferred for identifying 5' and upstream regions of genes. Genomic libraries are preferred for obtaining introns and extending 5' sequences.

10 For hybridization techniques, a partial sequence may be labeled (e.g., by nick-translation or end-labeling with ^{32}P) using well known techniques. A bacterial or bacteriophage library is then screened by hybridizing filters containing denatured bacterial colonies (or lawns containing phage plaques) with the labeled probe (see Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor
15 Laboratories, Cold Spring Harbor, NY, 1989). Hybridizing colonies or plaques are selected and expanded, and the DNA is isolated for further analysis. cDNA clones may be analyzed to determine the amount of additional sequence by, for example, PCR using a primer from the partial sequence and a primer from the vector. Restriction maps and partial sequences may be generated to identify one or more overlapping clones. The
20 complete sequence may then be determined using standard techniques, which may involve generating a series of deletion clones. The resulting overlapping sequences are then assembled into a single contiguous sequence. A full length cDNA molecule can be generated by ligating suitable fragments, using well known techniques.

Alternatively, there are numerous amplification techniques for obtaining
25 a full length coding sequence from a partial cDNA sequence. Within such techniques, amplification is generally performed via PCR. Any of a variety of commercially available kits may be used to perform the amplification step. Primers may be designed using, for example, software well known in the art. Primers are preferably 22-30 nucleotides in length, have a GC content of at least 50% and anneal to the target
30 sequence at temperatures of about 68°C to 72°C. The amplified region may be

sequenced as described above, and overlapping sequences assembled into a contiguous sequence.

One such amplification technique is inverse PCR (*see* Triglia et al., *Nucl. Acids Res.* 16:8186, 1988), which uses restriction enzymes to generate a fragment in the
5 known region of the gene. The fragment is then circularized by intramolecular ligation and used as a template for PCR with divergent primers derived from the known region. Within an alternative approach, sequences adjacent to a partial sequence may be retrieved by amplification with a primer to a linker sequence and a primer specific to a known region. The amplified sequences are typically subjected to a second round of
10 amplification with the same linker primer and a second primer specific to the known region. A variation on this procedure, which employs two primers that initiate extension in opposite directions from the known sequence, is described in WO 96/38591. Additional techniques include capture PCR (Lagerstrom et al., *PCR Methods Applic.* 1:111-19, 1991) and walking PCR (Parker et al., *Nucl. Acids. Res.* 19:3055-60,
15 1991). Other methods employing amplification may also be employed to obtain a full length cDNA sequence.

In certain instances, it is possible to obtain a full length cDNA sequence by analysis of sequences provided in an expressed sequence tag (EST) database, such as that available from GenBank. Searches for overlapping ESTs may generally be
20 performed using well known programs (*e.g.*, NCBI BLAST searches), and such ESTs may be used to generate a contiguous full length sequence.

Certain nucleic acid sequences of cDNA molecules encoding portions of ovarian carcinoma antigens are provided in Figures 1A-1S (SEQ ID NOS:1 to 71) and Figures 15A to 15EEE (SEQ ID NOS:82 to 310). The sequences provided in Figures
25 1A-1S appear to be novel. For sequences in Figures 15A-15EEE, database searches revealed matches having substantial identity. These polynucleotides were isolated by serological screening of an ovarian tumor cDNA expression library, using a technique designed to identify secreted tumor antigens. Briefly, a late passage ovarian tumor expression library was prepared from a SCID-derived human ovarian tumor (OV9334)
30 in the vector λ -screen (Novagen). The sera used for screening were obtained by injecting immunocompetent mice with sera from SCID mice implanted with one late

passage ovarian tumors. This technique permits the identification of cDNA molecules that encode immunogenic portions of secreted tumor antigens.

The polynucleotides recited herein, as well as full length polynucleotides comprising such sequences, other portions of such full length polynucleotides, and
5 sequences complementary to all or a portion of such full length molecules, are specifically encompassed by the present invention. It will be apparent to those of ordinary skill in the art that this technique can also be applied to the identification of antigens that are secreted from other types of tumors.

Other nucleic acid sequences of cDNA molecules encoding portions of
10 ovarian carcinoma proteins are provided in Figures 4-9 (SEQ ID NOs:75-81), as well as SEQ ID NOs:313-384. These sequences were identified by screening a microarray of cDNAs for tumor-associated expression (*i.e.*, expression that is at least five fold greater in an ovarian tumor than in normal ovarian tissue, as determined using a representative assay provided herein). Such screens were performed using a Synteni microarray (Palo
15 Alto, CA) according to the manufacturer's instructions (and essentially as described by Schena et al., *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997). SEQ ID NOs:311 and 391 provide full length sequences incorporating certain of these nucleic acid sequences.

Any of a variety of well known techniques may be used to evaluate
20 tumor-associated expression of a cDNA. For example, hybridization techniques using labeled polynucleotide probes may be employed. Alternatively, or in addition, amplification techniques such as real-time PCR may be used (*see* Gibson et al., *Genome Research* 6:995-1001, 1996; Heid et al., *Genome Research* 6:986-994, 1996). Real-time PCR is a technique that evaluates the level of PCR product accumulation during
25 amplification. This technique permits quantitative evaluation of mRNA levels in multiple samples. Briefly, mRNA is extracted from tumor and normal tissue and cDNA is prepared using standard techniques. Real-time PCR may be performed, for example, using a Perkin Elmer/Applied Biosystems (Foster City, CA) 7700 Prism instrument. Matching primers and fluorescent probes may be designed for genes of interest using,
30 for example, the primer express program provided by Perkin Elmer/Applied Biosystems (Foster City, CA). Optimal concentrations of primers and probes may be initially

determined by those of ordinary skill in the art, and control (e.g., β -actin) primers and probes may be obtained commercially from, for example, Perkin Elmer/Applied Biosystems (Foster City, CA). To quantitate the amount of specific RNA in a sample, a standard curve is generated alongside using a plasmid containing the gene of interest.

5 Standard curves may be generated using the Ct values determined in the real-time PCR, which are related to the initial cDNA concentration used in the assay. Standard dilutions ranging from 10^{-10} to 10^{-6} copies of the gene of interest are generally sufficient. In addition, a standard curve is generated for the control sequence. This permits standardization of initial RNA content of a tissue sample to the amount of control for

10 comparison purposes.

Polynucleotide variants may generally be prepared by any method known in the art, including chemical synthesis by, for example, solid phase phosphoramidite chemical synthesis. Modifications in a polynucleotide sequence may also be introduced using standard mutagenesis techniques, such as oligonucleotide-

15 directed site-specific mutagenesis (see Adelman et al., *DNA* 2:183, 1983). Alternatively, RNA molecules may be generated by *in vitro* or *in vivo* transcription of DNA sequences encoding an ovarian carcinoma antigen, or portion thereof, provided that the DNA is incorporated into a vector with a suitable RNA polymerase promoter (such as T7 or SP6). Certain portions may be used to prepare an encoded polypeptide,

20 as described herein. In addition, or alternatively, a portion may be administered to a patient such that the encoded polypeptide is generated *in vivo*.

A portion of a sequence complementary to a coding sequence (i.e., an antisense polynucleotide) may also be used as a probe or to modulate gene expression. cDNA constructs that can be transcribed into antisense RNA may also be introduced

25 into cells or tissues to facilitate the production of antisense RNA. An antisense polynucleotide may be used, as described herein, to inhibit expression of an ovarian carcinoma protein. Antisense technology can be used to control gene expression through triple-helix formation, which compromises the ability of the double helix to open sufficiently for the binding of polymerases, transcription factors or regulatory

30 molecules (see Gee et al., In Huber and Carr, *Molecular and Immunologic Approaches*, Futura Publishing Co. (Mt. Kisco, NY; 1994). Alternatively, an antisense molecule

may be designed to hybridize with a control region of a gene (*e.g.*, promoter, enhancer or transcription initiation site), and block transcription of the gene; or to block translation by inhibiting binding of a transcript to ribosomes.

Any polynucleotide may be further modified to increase stability *in vivo*.

5 Possible modifications include, but are not limited to, the addition of flanking sequences at the 5' and/or 3' ends; the use of phosphorothioate or 2' O-methyl rather than phosphodiesterase linkages in the backbone; and/or the inclusion of nontraditional bases such as inosine, queosine and wybutosine, as well as acetyl-, methyl-, thio- and other modified forms of adenine, cytidine, guanine, thymine and uridine.

10 Nucleotide sequences as described herein may be joined to a variety of other nucleotide sequences using established recombinant DNA techniques. For example, a polynucleotide may be cloned into any of a variety of cloning vectors, including plasmids, phagemids, lambda phage derivatives and cosmids. Vectors of particular interest include expression vectors, replication vectors, probe generation
15 vectors and sequencing vectors. In general, a vector will contain an origin of replication functional in at least one organism, convenient restriction endonuclease sites and one or more selectable markers. Other elements will depend upon the desired use, and will be apparent to those of ordinary skill in the art.

Within certain embodiments, polynucleotides may be formulated so as to
20 permit entry into a cell of a mammal, and expression therein. Such formulations are particularly useful for therapeutic purposes, as described below. Those of ordinary skill in the art will appreciate that there are many ways to achieve expression of a polynucleotide in a target cell, and any suitable method may be employed. For example, a polynucleotide may be incorporated into a viral vector such as, but not
25 limited to, adenovirus, adeno-associated virus, retrovirus, or vaccinia or other pox virus (*e.g.*, avian pox virus). Techniques for incorporating DNA into such vectors are well known to those of ordinary skill in the art. A retroviral vector may additionally transfer or incorporate a gene for a selectable marker (to aid in the identification or selection of transduced cells) and/or a targeting moiety, such as a gene that encodes a ligand for a
30 receptor on a specific target cell, to render the vector target specific. Targeting may

also be accomplished using an antibody, by methods known to those of ordinary skill in the art.

Other formulations for therapeutic purposes include colloidal dispersion systems, such as macromolecule complexes, nanocapsules, microspheres, beads, and lipid-based systems including oil-in-water emulsions, micelles, mixed micelles, and liposomes. A preferred colloidal system for use as a delivery vehicle *in vitro* and *in vivo* is a liposome (*i.e.*, an artificial membrane vesicle). The preparation and use of such systems is well known in the art.

10 OVARIAN CARCINOMA POLYPEPTIDES

Within the context of the present invention, polypeptides may comprise at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof, as described herein. As noted above, certain ovarian carcinoma proteins are ovarian carcinoma antigens that are expressed by ovarian tumor cells and react detectably within an immunoassay (such as an ELISA) with antisera generated against serum from an immunodeficient animal implanted with an ovarian tumor. Other ovarian carcinoma proteins are encoded by ovarian carcinoma polynucleotides recited herein. Polypeptides as described herein may be of any length. Additional sequences derived from the native protein and/or heterologous sequences may be present, and such sequences may (but need not) possess further immunogenic or antigenic properties.

An "immunogenic portion," as used herein is a portion of an antigen that is recognized (*i.e.*, specifically bound) by a B-cell and/or T-cell surface antigen receptor. Such immunogenic portions generally comprise at least 5 amino acid residues, more preferably at least 10, and still more preferably at least 20 amino acid residues of an ovarian carcinoma protein or a variant thereof. Preferred immunogenic portions are encoded by cDNA molecules isolated as described herein. Further immunogenic portions may generally be identified using well known techniques, such as those summarized in Paul, *Fundamental Immunology*, 3rd ed., 243-247 (Raven Press, 1993) and references cited therein. Such techniques include screening polypeptides for the ability to react with ovarian carcinoma protein-specific antibodies, antisera and/or T-cell lines or clones. As used herein, antisera and antibodies are "ovarian carcinoma

protein-specific" if they specifically bind to an ovarian carcinoma protein (*i.e.*, they react with the ovarian carcinoma protein in an ELISA or other immunoassay, and do not react detectably with unrelated proteins). Such antisera, antibodies and T cells may be prepared as described herein, and using well known techniques. An immunogenic
5 portion of a native ovarian carcinoma protein is a portion that reacts with such antisera, antibodies and/or T-cells at a level that is not substantially less than the reactivity of the full length polypeptide (*e.g.*, in an ELISA and/or T-cell reactivity assay). Such immunogenic portions may react within such assays at a level that is similar to or greater than the reactivity of the full length protein. Such screens may generally be
10 performed using methods well known to those of ordinary skill in the art, such as those described in Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. For example, a polypeptide may be immobilized on a solid support and contacted with patient sera to allow binding of antibodies within the sera to the immobilized polypeptide. Unbound sera may then be removed and bound antibodies
15 detected using, for example, ¹²⁵I-labeled Protein A.

As noted above, a composition may comprise a variant of a native ovarian carcinoma protein. A polypeptide "variant," as used herein, is a polypeptide that differs from a native ovarian carcinoma protein in one or more substitutions, deletions, additions and/or insertions, such that the immunogenicity of the polypeptide
20 is not substantially diminished. In other words, the ability of a variant to react with ovarian carcinoma protein-specific antisera may be enhanced or unchanged, relative to the native ovarian carcinoma protein, or may be diminished by less than 50%, and preferably less than 20%, relative to the native ovarian carcinoma protein. Such variants may generally be identified by modifying one of the above polypeptide
25 sequences and evaluating the reactivity of the modified polypeptide with ovarian carcinoma protein-specific antibodies or antisera as described herein. Preferred variants include those in which one or more portions, such as an N-terminal leader sequence or transmembrane domain, have been removed. Other preferred variants include variants in which a small portion (*e.g.*, 1-30 amino acids, preferably 5-15 amino acids) has been
30 removed from the N- and/or C-terminal of the mature protein.

Polypeptide variants preferably exhibit at least about 70%, more preferably at least about 90% and most preferably at least about 95% identity to the native polypeptide. Preferably, a variant contains conservative substitutions. A "conservative substitution" is one in which an amino acid is substituted for another amino acid that has similar properties, such that one skilled in the art of peptide chemistry would expect the secondary structure and hydrophobic nature of the polypeptide to be substantially unchanged. Amino acid substitutions may generally be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity and/or the amphipathic nature of the residues. For example, negatively charged amino acids include aspartic acid and glutamic acid; positively charged amino acids include lysine and arginine; and amino acids with uncharged polar head groups having similar hydrophilicity values include leucine, isoleucine and valine; glycine and alanine; asparagine and glutamine; and serine, threonine, phenylalanine and tyrosine. Other groups of amino acids that may represent conservative changes include: (1) ala, pro, gly, glu, asp, gln, asn, ser, thr; (2) cys, ser, tyr, thr; (3) val, ile, leu, met, ala, phe; (4) lys, arg, his; and (5) phe, tyr, trp, his. A variant may also, or alternatively, contain nonconservative changes. Variants may also (or alternatively) be modified by, for example, the deletion or addition of amino acids that have minimal influence on the immunogenicity, secondary structure and hydrophobic nature of the polypeptide.

As noted above, polypeptides may comprise a signal (or leader) sequence at the N-terminal end of the protein which co-translationally or post-translationally directs transfer of the protein. The polypeptide may also be conjugated to a linker or other sequence for ease of synthesis, purification or identification of the polypeptide (e.g., poly-His), or to enhance binding of the polypeptide to a solid support. For example, a polypeptide may be conjugated to an immunoglobulin Fc region.

Polypeptides may be prepared using any of a variety of well known techniques. Recombinant polypeptides encoded by DNA sequences as described above may be readily prepared from the DNA sequences using any of a variety of expression vectors known to those of ordinary skill in the art. Expression may be achieved in any appropriate host cell that has been transformed or transfected with an expression vector containing a DNA molecule that encodes a recombinant polypeptide. Suitable host

cells include prokaryotes, yeast and higher eukaryotic cells. Preferably, the host cells employed are *E. coli*, yeast or a mammalian cell line such as COS or CHO. Supernatants from suitable host/vector systems which secrete recombinant protein or polypeptide into culture media may be first concentrated using a commercially available
5 filter. Following concentration, the concentrate may be applied to a suitable purification matrix such as an affinity matrix or an ion exchange resin. Finally, one or more reverse phase HPLC steps can be employed to further purify a recombinant polypeptide.

Portions and other variants having fewer than about 100 amino acids,
10 and generally fewer than about 50 amino acids, may also be generated by synthetic means, using techniques well known to those of ordinary skill in the art. For example, such polypeptides may be synthesized using any of the commercially available solid-phase techniques, such as the Merrifield solid-phase synthesis method, where amino acids are sequentially added to a growing amino acid chain. See Merrifield, *J. Am.*
15 *Chem. Soc.* 85:2149-2146, 1963. Equipment for automated synthesis of polypeptides is commercially available from suppliers such as Applied BioSystems, Inc. (Foster City, CA), and may be operated according to the manufacturer's instructions.

Within certain specific embodiments, a polypeptide may be a fusion protein that comprises multiple polypeptides as described herein, or that comprises one
20 polypeptide as described herein and a known tumor antigen, such as an ovarian carcinoma protein or a variant of such a protein. A fusion partner may, for example, assist in providing T-helper epitopes (an immunological fusion partner), preferably T helper epitopes recognized by humans, or may assist in expressing the protein (an expression enhancer) at higher yields than the native recombinant protein. Certain
25 preferred fusion partners are both immunological and expression enhancing fusion partners. Other fusion partners may be selected so as to increase the solubility of the protein or to enable the protein to be targeted to desired intracellular compartments. Still further fusion partners include affinity tags, which facilitate purification of the protein.

30 Fusion proteins may generally be prepared using standard techniques, including chemical conjugation. Preferably, a fusion protein is expressed as a

recombinant protein, allowing the production of increased levels, relative to a non-fused protein, in an expression system. Briefly, DNA sequences encoding the polypeptide components may be assembled separately, and ligated into an appropriate expression vector. The 3' end of the DNA sequence encoding one polypeptide component is
5 ligated, with or without a peptide linker, to the 5' end of a DNA sequence encoding the second polypeptide component so that the reading frames of the sequences are in phase. This permits translation into a single fusion protein that retains the biological activity of both component polypeptides.

A peptide linker sequence may be employed to separate the first and the
10 second polypeptide components by a distance sufficient to ensure that each polypeptide folds into its secondary and tertiary structures. Such a peptide linker sequence is incorporated into the fusion protein using standard techniques well known in the art. Suitable peptide linker sequences may be chosen based on the following factors: (1) their ability to adopt a flexible extended conformation; (2) their inability to adopt a
15 secondary structure that could interact with functional epitopes on the first and second polypeptides; and (3) the lack of hydrophobic or charged residues that might react with the polypeptide functional epitopes. Preferred peptide linker sequences contain Gly, Asn and Ser residues. Other near neutral amino acids, such as Thr and Ala may also be used in the linker sequence. Amino acid sequences which may be usefully employed as
20 linkers include those disclosed in Maratea et al., *Gene* 40:39-46, 1985; Murphy et al., *Proc. Natl. Acad. Sci. USA* 83:8258-8262, 1986; U.S. Patent No. 4,935,233 and U.S. Patent No. 4,751,180. The linker sequence may generally be from 1 to about 50 amino acids in length. Linker sequences are not required when the first and second polypeptides have non-essential N-terminal amino acid regions that can be used to
25 separate the functional domains and prevent steric interference.

The ligated DNA sequences are operably linked to suitable transcriptional or translational regulatory elements. The regulatory elements responsible for expression of DNA are located only 5' to the DNA sequence encoding the first polypeptides. Similarly, stop codons required to end translation and
30 transcription termination signals are only present 3' to the DNA sequence encoding the second polypeptide.

Fusion proteins are also provided that comprise a polypeptide of the present invention together with an unrelated immunogenic protein. Preferably the immunogenic protein is capable of eliciting a recall response. Examples of such proteins include tetanus, tuberculosis and hepatitis proteins (*see, for example, Stoute et al. New Engl. J. Med., 336:86-91, 1997.*)

Within preferred embodiments, an immunological fusion partner is derived from protein D, a surface protein of the gram-negative bacterium *Haemophilus influenza B* (WO 91/18926). Preferably, a protein D derivative comprises approximately the first third of the protein (*e.g.*, the first N-terminal 100-110 amino acids), and a protein D derivative may be lipidated. Within certain preferred embodiments, the first 109 residues of a Lipoprotein D fusion partner is included on the N-terminus to provide the polypeptide with additional exogenous T-cell epitopes and to increase the expression level in *E. coli* (thus functioning as an expression enhancer). The lipid tail ensures optimal presentation of the antigen to antigen present cells. Other fusion partners include the non-structural protein from influenzae virus, NS1 (hemagglutinin). Typically, the N-terminal 81 amino acids are used, although different fragments that include T-helper epitopes may be used.

In another embodiment, the immunological fusion partner is the protein known as LYTA, or a portion thereof (preferably a C-terminal portion). LYTA is derived from *Streptococcus pneumoniae*, which synthesizes an N-acetyl-L-alanine amidase known as amidase LYTA (encoded by the *LytA* gene; *Gene* 43:265-292, 1986). LYTA is an autolysin that specifically degrades certain bonds in the peptidoglycan backbone. The C-terminal domain of the LYTA protein is responsible for the affinity to the choline or to some choline analogues such as DEAE. This property has been exploited for the development of *E. coli* C-LYTA expressing plasmids useful for expression of fusion proteins. Purification of hybrid proteins containing the C-LYTA fragment at the amino terminus has been described (*see Biotechnology* 10:795-798, 1992). Within a preferred embodiment, a repeat portion of LYTA may be incorporated into a fusion protein. A repeat portion is found in the C-terminal region starting at residue 178. A particularly preferred repeat portion incorporates residues 188-305.

In general, polypeptides (including fusion proteins) and polynucleotides as described herein are isolated. An "isolated" polypeptide or polynucleotide is one that is removed from its original environment. For example, a naturally-occurring protein is isolated if it is separated from some or all of the coexisting materials in the natural system. Preferably, such polypeptides are at least about 90% pure, more preferably at least about 95% pure and most preferably at least about 99% pure. A polynucleotide is considered to be isolated if, for example, it is cloned into a vector that is not a part of the natural environment.

10 BINDING AGENTS

The present invention further provides agents, such as antibodies and antigen-binding fragments thereof, that specifically bind to an ovarian carcinoma protein. As used herein, an antibody, or antigen-binding fragment thereof, is said to "specifically bind" to an ovarian carcinoma protein if it reacts at a detectable level (within, for example, an ELISA) with an ovarian carcinoma protein, and does not react detectably with unrelated proteins under similar conditions. As used herein, "binding" refers to a noncovalent association between two separate molecules such that a "complex" is formed. The ability to bind may be evaluated by, for example, determining a binding constant for the formation of the complex. The binding constant is the value obtained when the concentration of the complex is divided by the product of the component concentrations. In general, two compounds are said to "bind," in the context of the present invention, when the binding constant for complex formation exceeds about 10^3 L/mol. The binding constant may be determined using methods well known in the art.

Binding agents may be further capable of differentiating between patients with and without a cancer, such as ovarian cancer, using the representative assays provided herein. In other words, antibodies or other binding agents that bind to an ovarian carcinoma antigen will generate a signal indicating the presence of a cancer in at least about 20% of patients with the disease, and will generate a negative signal indicating the absence of the disease in at least about 90% of individuals without the cancer. To determine whether a binding agent satisfies this requirement, biological

samples (e.g., blood, sera, leukophoresis, urine and/or tumor biopsies) from patients with and without a cancer (as determined using standard clinical tests) may be assayed as described herein for the presence of polypeptides that bind to the binding agent. It will be apparent that a statistically significant number of samples with and without the disease should be assayed. Each binding agent should satisfy the above criteria; however, those of ordinary skill in the art will recognize that binding agents may be used in combination to improve sensitivity.

Any agent that satisfies the above requirements may be a binding agent. For example, a binding agent may be a ribosome, with or without a peptide component, an RNA molecule or a polypeptide. In a preferred embodiment, a binding agent is an antibody or an antigen-binding fragment thereof. Antibodies may be prepared by any of a variety of techniques known to those of ordinary skill in the art. See, e.g., Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, antibodies can be produced by cell culture techniques, including the generation of monoclonal antibodies as described herein, or via transfection of antibody genes into suitable bacterial or mammalian cell hosts, in order to allow for the production of recombinant antibodies. In one technique, an immunogen comprising the polypeptide is initially injected into any of a wide variety of mammals (e.g., mice, rats, rabbits, sheep or goats). In this step, the polypeptides of this invention may serve as the immunogen without modification. Alternatively, particularly for relatively short polypeptides, a superior immune response may be elicited if the polypeptide is joined to a carrier protein, such as bovine serum albumin or keyhole limpet hemocyanin. The immunogen is injected into the animal host, preferably according to a predetermined schedule incorporating one or more booster immunizations, and the animals are bled periodically. Polyclonal antibodies specific for the polypeptide may then be purified from such antisera by, for example, affinity chromatography using the polypeptide coupled to a suitable solid support.

Monoclonal antibodies specific for an antigenic polypeptide of interest may be prepared, for example, using the technique of Kohler and Milstein, *Eur. J. Immunol.* 6:511-519, 1976, and improvements thereto. Briefly, these methods involve the preparation of immortal cell lines capable of producing antibodies having the

desired specificity (*i.e.*, reactivity with the polypeptide of interest). Such cell lines may be produced, for example, from spleen cells obtained from an animal immunized as described above. The spleen cells are then immortalized by, for example, fusion with a myeloma cell fusion partner, preferably one that is syngeneic with the immunized animal. A variety of fusion techniques may be employed. For example, the spleen cells and myeloma cells may be combined with a nonionic detergent for a few minutes and then plated at low density on a selective medium that supports the growth of hybrid cells, but not myeloma cells. A preferred selection technique uses HAT (hypoxanthine, aminopterin, thymidine) selection. After a sufficient time, usually about 1 to 2 weeks, colonies of hybrids are observed. Single colonies are selected and their culture supernatants tested for binding activity against the polypeptide. Hybridomas having high reactivity and specificity are preferred.

Monoclonal antibodies may be isolated from the supernatants of growing hybridoma colonies. In addition, various techniques may be employed to enhance the yield, such as injection of the hybridoma cell line into the peritoneal cavity of a suitable vertebrate host, such as a mouse. Monoclonal antibodies may then be harvested from the ascites fluid or the blood. Contaminants may be removed from the antibodies by conventional techniques, such as chromatography, gel filtration, precipitation, and extraction. The polypeptides of this invention may be used in the purification process in, for example, an affinity chromatography step.

Within certain embodiments, the use of antigen-binding fragments of antibodies may be preferred. Such fragments include Fab fragments, which may be prepared using standard techniques. Briefly, immunoglobulins may be purified from rabbit serum by affinity chromatography on Protein A bead columns (Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988) and digested by papain to yield Fab and Fc fragments. The Fab and Fc fragments may be separated by affinity chromatography on protein A bead columns.

Monoclonal antibodies of the present invention may be coupled to one or more therapeutic agents. Suitable agents in this regard include radionuclides, differentiation inducers, drugs, toxins, and derivatives thereof. Preferred radionuclides include ^{90}Y , ^{123}I , ^{125}I , ^{131}I , ^{186}Re , ^{188}Re , ^{211}At , and ^{212}Bi . Preferred drugs include

methotrexate, and pyrimidine and purine analogs. Preferred differentiation inducers include phorbol esters and butyric acid. Preferred toxins include ricin, abrin, diphtheria toxin, cholera toxin, gelonin, Pseudomonas exotoxin, Shigella toxin, and pokeweed antiviral protein.

5 A therapeutic agent may be coupled (*e.g.*, covalently bonded) to a suitable monoclonal antibody either directly or indirectly (*e.g.*, via a linker group). A direct reaction between an agent and an antibody is possible when each possesses a substituent capable of reacting with the other. For example, a nucleophilic group, such as an amino or sulfhydryl group, on one may be capable of reacting with a carbonyl-
10 containing group, such as an anhydride or an acid halide, or with an alkyl group containing a good leaving group (*e.g.*, a halide) on the other.

 Alternatively, it may be desirable to couple a therapeutic agent and an antibody via a linker group. A linker group can function as a spacer to distance an antibody from an agent in order to avoid interference with binding capabilities. A
15 linker group can also serve to increase the chemical reactivity of a substituent on an agent or an antibody, and thus increase the coupling efficiency. An increase in chemical reactivity may also facilitate the use of agents, or functional groups on agents, which otherwise would not be possible.

 It will be evident to those skilled in the art that a variety of bifunctional
20 or polyfunctional reagents, both homo- and hetero-functional (such as those described in the catalog of the Pierce Chemical Co., Rockford, IL), may be employed as the linker group. Coupling may be effected, for example, through amino groups, carboxyl groups, sulfhydryl groups or oxidized carbohydrate residues. There are numerous references describing such methodology, *e.g.*, U.S. Patent No. 4,671,958, to Rodwell et al.

25 Where a therapeutic agent is more potent when free from the antibody portion of the immunoconjugates of the present invention, it may be desirable to use a linker group which is cleavable during or upon internalization into a cell. A number of different cleavable linker groups have been described. The mechanisms for the intracellular release of an agent from these linker groups include cleavage by reduction
30 of a disulfide bond (*e.g.*, U.S. Patent No. 4,489,710, to Spitler), by irradiation of a photolabile bond (*e.g.*, U.S. Patent No. 4,625,014, to Senter et al.), by hydrolysis of

derivatized amino acid side chains (*e.g.*, U.S. Patent No. 4,638,045, to Kohn et al.), by serum complement-mediated hydrolysis (*e.g.*, U.S. Patent No. 4,671,958, to Rodwell et al.), and acid-catalyzed hydrolysis (*e.g.*, U.S. Patent No. 4,569,789, to Blattler et al.).

It may be desirable to couple more than one agent to an antibody. In one embodiment, multiple molecules of an agent are coupled to one antibody molecule. In another embodiment, more than one type of agent may be coupled to one antibody. Regardless of the particular embodiment, immunoconjugates with more than one agent may be prepared in a variety of ways. For example, more than one agent may be coupled directly to an antibody molecule, or linkers which provide multiple sites for attachment can be used. Alternatively, a carrier can be used.

A carrier may bear the agents in a variety of ways, including covalent bonding either directly or via a linker group. Suitable carriers include proteins such as albumins (*e.g.*, U.S. Patent No. 4,507,234, to Kato et al.), peptides and polysaccharides such as aminodextran (*e.g.*, U.S. Patent No. 4,699,784, to Shih et al.). A carrier may also bear an agent by noncovalent bonding or by encapsulation, such as within a liposome vesicle (*e.g.*, U.S. Patent Nos. 4,429,008 and 4,873,088). Carriers specific for radionuclide agents include radiohalogenated small molecules and chelating compounds. For example, U.S. Patent No. 4,735,792 discloses representative radiohalogenated small molecules and their synthesis. A radionuclide chelate may be formed from chelating compounds that include those containing nitrogen and sulfur atoms as the donor atoms for binding the metal, or metal oxide, radionuclide. For example, U.S. Patent No. 4,673,562, to Davison et al. discloses representative chelating compounds and their synthesis.

A variety of routes of administration for the antibodies and immunoconjugates may be used. Typically, administration will be intravenous, intramuscular, subcutaneous or in the bed of a resected tumor. It will be evident that the precise dose of the antibody/immunoconjugate will vary depending upon the antibody used, the antigen density on the tumor, and the rate of clearance of the antibody.

Also provided herein are anti-idiotypic antibodies that mimic an immunogenic portion of an ovarian carcinoma protein. Such antibodies may be raised against an antibody, or antigen-binding fragment thereof, that specifically binds to an

immunogenic portion of an ovarian carcinoma protein, using well known techniques. Anti-idiotypic antibodies that mimic an immunogenic portion of an ovarian carcinoma protein are those antibodies that bind to an antibody, or antigen-binding fragment thereof, that specifically binds to an immunogenic portion of an ovarian carcinoma protein, as described herein.

T CELLS

Immunotherapeutic compositions may also, or alternatively, comprise T cells specific for an ovarian carcinoma protein. Such cells may generally be prepared *in vitro* or *ex vivo*, using standard procedures. For example, T cells may be present within (or isolated from) bone marrow, peripheral blood or a fraction of bone marrow or peripheral blood of a mammal, such as a patient, using a commercially available cell separation system, such as the CEPRATE™ system, available from CellPro Inc., Bothell WA (see also U.S. Patent No. 5,240,856; U.S. Patent No. 5,215,926; WO 89/06280; WO 91/16116 and WO 92/07243). Alternatively, T cells may be derived from related or unrelated humans, non-human animals, cell lines or cultures.

T cells may be stimulated with an ovarian carcinoma polypeptide, polynucleotide encoding an ovarian carcinoma polypeptide and/or an antigen presenting cell (APC) that expresses such a polypeptide. Such stimulation is performed under conditions and for a time sufficient to permit the generation of T cells that are specific for the polypeptide. Preferably, an ovarian carcinoma polypeptide or polynucleotide is present within a delivery vehicle, such as a microsphere, to facilitate the generation of specific T cells.

T cells are considered to be specific for an ovarian carcinoma polypeptide if the T cells kill target cells coated with an ovarian carcinoma polypeptide or expressing a gene encoding such a polypeptide. T cell specificity may be evaluated using any of a variety of standard techniques. For example, within a chromium release assay or proliferation assay, a stimulation index of more than two fold increase in lysis and/or proliferation, compared to negative controls, indicates T cell specificity. Such assays may be performed, for example, as described in Chen et al., *Cancer Res.* 54:1065-1070, 1994. Alternatively, detection of the proliferation of T cells may be

accomplished by a variety of known techniques. For example, T cell proliferation can be detected by measuring an increased rate of DNA synthesis (*e.g.*, by pulse-labeling cultures of T cells with tritiated thymidine and measuring the amount of tritiated thymidine incorporated into DNA). Contact with an ovarian carcinoma polypeptide
5 (200 ng/ml - 100 µg/ml, preferably 100 ng/ml - 25 µg/ml) for 3 - 7 days should result in at least a two fold increase in proliferation of the T cells and/or contact as described above for 2-3 hours should result in activation of the T cells, as measured using standard cytokine assays in which a two fold increase in the level of cytokine release (*e.g.*, TNF or IFN-γ) is indicative of T cell activation (*see* Coligan et al., Current
10 Protocols in Immunology, vol. 1, Wiley Interscience (Greene 1998). T cells that have been activated in response to an ovarian carcinoma polypeptide, polynucleotide or ovarian carcinoma polypeptide-expressing APC may be CD4⁺ and/or CD8⁺. Ovarian carcinoma polypeptide-specific T cells may be expanded using standard techniques. Within preferred embodiments, the T cells are derived from a patient or a related or
15 unrelated donor and are administered to the patient following stimulation and expansion.

For therapeutic purposes, CD4⁺ or CD8⁺ T cells that proliferate in response to an ovarian carcinoma polypeptide, polynucleotide or APC can be expanded in number either *in vitro* or *in vivo*. Proliferation of such T cells *in vitro* may be
20 accomplished in a variety of ways. For example, the T cells can be re-exposed to an ovarian carcinoma polypeptide, with or without the addition of T cell growth factors, such as interleukin-2, and/or stimulator cells that synthesize an ovarian carcinoma polypeptide. Alternatively, one or more T cells that proliferate in the presence of an ovarian carcinoma polypeptide can be expanded in number by cloning. Methods for
25 cloning cells are well known in the art, and include limiting dilution. Following expansion, the cells may be administered back to the patient as described, for example, by Chang et al., *Crit. Rev. Oncol. Hematol.* 22:213, 1996.

PHARMACEUTICAL COMPOSITIONS AND VACCINES

30 Within certain aspects, polypeptides, polynucleotides, binding agents and/or immune system cells as described herein may be incorporated into

pharmaceutical compositions or vaccines. Pharmaceutical compositions comprise one or more such compounds or cells and a physiologically acceptable carrier. Vaccines may comprise one or more such compounds or cells and a non-specific immune response enhancer. A non-specific immune response enhancer may be any substance
5 that enhances an immune response to an exogenous antigen. Examples of non-specific immune response enhancers include adjuvants, biodegradable microspheres (*e.g.*, polylactic galactide) and liposomes (into which the compound is incorporated; *see e.g.*, Fullerton, U.S. Patent No. 4,235,877). Vaccine preparation is generally described in, for example, M.F. Powell and M.J. Newman, eds., "Vaccine Design (the subunit and
10 adjuvant approach)," Plenum Press (NY, 1995). Pharmaceutical compositions and vaccines within the scope of the present invention may also contain other compounds, which may be biologically active or inactive. For example, one or more immunogenic portions of other tumor antigens may be present, either incorporated into a fusion polypeptide or as a separate compound within the composition or vaccine.

15 A pharmaceutical composition or vaccine may contain DNA encoding one or more of the polypeptides as described above, such that the polypeptide is generated *in situ*. As noted above, the DNA may be present within any of a variety of delivery systems known to those of ordinary skill in the art, including nucleic acid expression systems, bacteria and viral expression systems. Appropriate nucleic acid
20 expression systems contain the necessary DNA sequences for expression in the patient (such as a suitable promoter and terminating signal). Bacterial delivery systems involve the administration of a bacterium (such as *Bacillus-Calmette-Guerrin*) that expresses an immunogenic portion of the polypeptide on its cell surface. In a preferred embodiment, the DNA may be introduced using a viral expression system (*e.g.*, vaccinia or other pox
25 virus, retrovirus, or adenovirus), which may involve the use of a non-pathogenic (defective), replication competent virus. Suitable systems are disclosed, for example, in Fisher-Hoch et al., *PNAS* 86:317-321, 1989; Flexner et al., *Ann. N.Y. Acad. Sci.* 569:86-103, 1989; Flexner et al., *Vaccine* 8:17-21, 1990; U.S. Patent Nos. 4,603,112, 4,769,330, and 5,017,487; WO 89/01973; U.S. Patent No. 4,777,127; GB 2,200,651;
30 EP 0,345,242; WO 91/02805; Berkner, *Biotechniques* 6:616-627, 1988; Rosenfeld et al., *Science* 252:431-434, 1991; Kolls et al., *PNAS* 91:215-219, 1994; Kass-Eisler et al.,

PNAS 90:11498-11502, 1993; Guzman et al., *Circulation* 88:2838-2848, 1993; and Guzman et al., *Cir. Res.* 73:1202-1207, 1993. Techniques for incorporating DNA into such expression systems are well known to those of ordinary skill in the art. The DNA may also be "naked," as described, for example, in Ulmer et al., *Science* 259:1745-1749, 5 1993 and reviewed by Cohen, *Science* 259:1691-1692, 1993. The uptake of naked DNA may be increased by coating the DNA onto biodegradable beads, which are efficiently transported into the cells.

While any suitable carrier known to those of ordinary skill in the art may be employed in the pharmaceutical compositions of this invention, the type of carrier 10 will vary depending on the mode of administration. Compositions of the present invention may be formulated for any appropriate manner of administration, including for example, topical, oral, nasal, intravenous, intracranial, intraperitoneal, subcutaneous or intramuscular administration. For parenteral administration, such as subcutaneous injection, the carrier preferably comprises water, saline, alcohol, a fat, a wax or a buffer. 15 For oral administration, any of the above carriers or a solid carrier, such as mannitol, lactose, starch, magnesium stearate, sodium saccharine, talcum, cellulose, glucose, sucrose, and magnesium carbonate, may be employed. Biodegradable microspheres (*e.g.*, polylactate polyglycolate) may also be employed as carriers for the pharmaceutical compositions of this invention. Suitable biodegradable microspheres 20 are disclosed, for example, in U.S. Patent Nos. 4,897,268 and 5,075,109.

Such compositions may also comprise buffers (*e.g.*, neutral buffered saline or phosphate buffered saline), carbohydrates (*e.g.*, glucose, mannose, sucrose or dextrans), mannitol, proteins, polypeptides or amino acids such as glycine, antioxidants, chelating agents such as EDTA or glutathione, adjuvants (*e.g.*, aluminum hydroxide) 25 and/or preservatives. Alternatively, compositions of the present invention may be formulated as a lyophilizate. Compounds may also be encapsulated within liposomes using well known technology.

Any of a variety of non-specific immune response enhancers may be employed in the vaccines of this invention. For example, an adjuvant may be included. 30 Most adjuvants contain a substance designed to protect the antigen from rapid catabolism, such as aluminum hydroxide or mineral oil, and a stimulator of immune

responses, such as lipid A, *Bordetella pertussis* or *Mycobacterium tuberculosis* derived proteins. Suitable adjuvants are commercially available as, for example, Freund's Incomplete Adjuvant and Complete Adjuvant (Difco Laboratories, Detroit, MI), Merck Adjuvant 65 (Merck and Company, Inc., Rahway, NJ), alum, biodegradable
5 microspheres, monophosphoryl lipid A and quil A. Cytokines, such as GM-CSF or interleukin-2, -7, or -12, may also be used as adjuvants.

Within the vaccines provided herein, the adjuvant composition is preferably designed to induce an immune response predominantly of the Th1 type. High levels of Th1-type cytokines (e.g., IFN- γ , IL-2 and IL-12) tend to favor the
10 induction of cell mediated immune responses to an administered antigen. In contrast, high levels of Th2-type cytokines (e.g., IL-4, IL-5, IL-6, IL-10 and TNF- β) tend to favor the induction of humoral immune responses. Following application of a vaccine as provided herein, a patient will support an immune response that includes Th1- and Th2-type responses. Within a preferred embodiment, in which a response is
15 predominantly Th1-type, the level of Th1-type cytokines will increase to a greater extent than the level of Th2-type cytokines. The levels of these cytokines may be readily assessed using standard assays. For a review of the families of cytokines, see Mosmann and Coffman, *Ann. Rev. Immunol.* 7:145-173, 1989.

Preferred adjuvants for use in eliciting a predominantly Th1-type
20 response include, for example, a combination of monophosphoryl lipid A, preferably 3-de-O-acylated monophosphoryl lipid A (3D-MPL), together with an aluminum salt. MPL adjuvants are available from Ribi ImmunoChem Research Inc. (Hamilton, MT; see US Patent Nos. 4,436,727; 4,877,611; 4,866,034 and 4,912,094). Also preferred is AS-2 (SmithKline Beecham). CpG-containing oligonucleotides (in which the CpG
25 dinucleotide is unmethylated) also induce a predominantly Th1 response. Such oligonucleotides are well known and are described, for example, in WO 96/02555. Another preferred adjuvant is a saponin, preferably QS21, which may be used alone or in combination with other adjuvants. For example, an enhanced system involves the combination of a monophosphoryl lipid A and saponin derivative, such as the
30 combination of QS21 and 3D-MPL as described in WO 94/00153, or a less reactogenic composition where the QS21 is quenched with cholesterol, as described in WO

96/33739. Other preferred formulations comprises an oil-in-water emulsion and tocopherol. A particularly potent adjuvant formulation involving QS21, 3D-MPL and tocopherol in an oil-in-water emulsion is described in WO 95/17210. Any vaccine provided herein may be prepared using well known methods that result in a combination of antigen, immune response enhancer and a suitable carrier or excipient.

The compositions described herein may be administered as part of a sustained release formulation (*i.e.*, a formulation such as a capsule or sponge that effects a slow release of compound following administration). Such formulations may generally be prepared using well known technology and administered by, for example, oral, rectal or subcutaneous implantation, or by implantation at the desired target site. Sustained-release formulations may contain a polypeptide, polynucleotide or antibody dispersed in a carrier matrix and/or contained within a reservoir surrounded by a rate controlling membrane. Carriers for use within such formulations are biocompatible, and may also be biodegradable; preferably the formulation provides a relatively constant level of active component release. The amount of active compound contained within a sustained release formulation depends upon the site of implantation, the rate and expected duration of release and the nature of the condition to be treated or prevented.

Any of a variety of delivery vehicles may be employed within pharmaceutical compositions and vaccines to facilitate production of an antigen-specific immune response that targets tumor cells. Delivery vehicles include antigen presenting cells (APCs), such as dendritic cells, macrophages, B cells, monocytes and other cells that may be engineered to be efficient APCs. Such cells may, but need not, be genetically modified to increase the capacity for presenting the antigen, to improve activation and/or maintenance of the T cell response, to have anti-tumor effects *per se* and/or to be immunologically compatible with the receiver (*i.e.*, matched HLA haplotype). APCs may generally be isolated from any of a variety of biological fluids and organs, including tumor and peritumoral tissues, and may be autologous, allogeneic, syngeneic or xenogeneic cells.

Certain preferred embodiments of the present invention use dendritic cells or progenitors thereof as antigen-presenting cells. Dendritic cells are highly potent

APCs (Banchereau and Steinman, *Nature* 392:245-251, 1998) and have been shown to be effective as a physiological adjuvant for eliciting prophylactic or therapeutic antitumor immunity (see Timmerman and Levy, *Ann. Rev. Med.* 50:507-529, 1999). In general, dendritic cells may be identified based on their typical shape (stellate *in situ*,
5 with marked cytoplasmic processes (dendrites) visible *in vitro*) and based on the lack of differentiation markers of B cells (CD19 and CD20), T cells (CD3), monocytes (CD14) and natural killer cells (CD56), as determined using standard assays. Dendritic cells may, of course, be engineered to express specific cell-surface receptors or ligands that are not commonly found on dendritic cells *in vivo* or *ex vivo*, and such modified
10 dendritic cells are contemplated by the present invention. As an alternative to dendritic cells, secreted vesicles antigen-loaded dendritic cells (called exosomes) may be used within a vaccine (see Zitvogel et al., *Nature Med.* 4:594-600, 1998).

Dendritic cells and progenitors may be obtained from peripheral blood, bone marrow, tumor-infiltrating cells, peritumoral tissues-infiltrating cells, lymph
15 nodes, spleen, skin, umbilical cord blood or any other suitable tissue or fluid. For example, dendritic cells may be differentiated *ex vivo* by adding a combination of cytokines such as GM-CSF, IL-4, IL-13 and/or TNF α to cultures of monocytes harvested from peripheral blood. Alternatively, CD34 positive cells harvested from peripheral blood, umbilical cord blood or bone marrow may be differentiated into
20 dendritic cells by adding to the culture medium combinations of GM-CSF, IL-3, TNF α , CD40 ligand, LPS, flt3 ligand and/or other compound(s) that induce maturation and proliferation of dendritic cells.

Dendritic cells are conveniently categorized as "immature" and "mature" cells, which allows a simple way to discriminate between two well characterized
25 phenotypes. However, this nomenclature should not be construed to exclude all possible intermediate stages of differentiation. Immature dendritic cells are characterized as APC with a high capacity for antigen uptake and processing, which correlates with the high expression of Fc γ receptor, mannose receptor and DEC-205 marker. The mature phenotype is typically characterized by a lower expression of these
30 markers, but a high expression of cell surface molecules responsible for T cell

activation such as class I and class II MHC, adhesion molecules (*e.g.*, CD54 and CD11) and costimulatory molecules (*e.g.*, CD40, CD80 and CD86).

APCs may generally be transfected with a polynucleotide encoding a ovarian carcinoma antigen (or portion or other variant thereof) such that the antigen, or
5 an immunogenic portion thereof, is expressed on the cell surface. Such transfection may take place *ex vivo*, and a composition or vaccine comprising such transfected cells may then be used for therapeutic purposes, as described herein. Alternatively, a gene delivery vehicle that targets a dendritic or other antigen presenting cell may be administered to a patient, resulting in transfection that occurs *in vivo*. *In vivo* and *ex*
10 *vivo* transfection of dendritic cells, for example, may generally be performed using any methods known in the art, such as those described in WO 97/24447, or the gene gun approach described by Mahvi et al., *Immunology and cell Biology* 75:456-460, 1997. Antigen loading of dendritic cells may be achieved by incubating dendritic cells or progenitor cells with the polypeptide, DNA (naked or within a plasmid vector) or RNA;
15 or with antigen-expressing recombinant bacterium or viruses (*e.g.*, vaccinia, fowlpox, adenovirus or lentivirus vectors). Prior to loading, the polypeptide may be covalently conjugated to an immunological partner that provides T cell help (*e.g.*, a carrier molecule). Alternatively, a dendritic cell may be pulsed with a non-conjugated immunological partner, separately or in the presence of the polypeptide.

20

CANCER THERAPY

In further aspects of the present invention, the compositions described herein may be used for immunotherapy of cancer, such as ovarian cancer. Within such methods, pharmaceutical compositions and vaccines are typically administered to a
25 patient. As used herein, a "patient" refers to any warm-blooded animal, preferably a human. A patient may or may not be afflicted with cancer. Accordingly, the above pharmaceutical compositions and vaccines may be used to prevent the development of a cancer or to treat a patient afflicted with a cancer. Within certain preferred embodiments, a patient is afflicted with ovarian cancer. Such cancer may be diagnosed
30 using criteria generally accepted in the art, including the presence of a malignant tumor. Pharmaceutical compositions and vaccines may be administered either prior to or

following surgical removal of primary tumors and/or treatment such as administration of radiotherapy or conventional chemotherapeutic drugs.

Within certain embodiments, immunotherapy may be active immunotherapy, in which treatment relies on the *in vivo* stimulation of the endogenous host immune system to react against tumors with the administration of immuno-
5 response-modifying agents (such as tumor vaccines, bacterial adjuvants and/or cytokines).

Within other embodiments, immunotherapy may be passive immunotherapy, in which treatment involves the delivery of agents with established
10 tumor-immune reactivity (such as effector cells or antibodies) that can directly or indirectly mediate antitumor effects and does not necessarily depend on an intact host immune system. Examples of effector cells include T lymphocytes (such as CD8⁺ cytotoxic T lymphocytes and CD4⁺ T-helper tumor-infiltrating lymphocytes), killer cells (such as Natural Killer cells and lymphokine-activated killer cells), B cells and
15 antigen-presenting cells (such as dendritic cells and macrophages) expressing a polypeptide provided herein. T cell receptors and antibody receptors specific for the polypeptides recited herein may be cloned, expressed and transferred into other vectors or effector cells for adoptive immunotherapy. The polypeptides provided herein may also be used to generate antibodies or anti-idiotypic antibodies (as described above and
20 in U.S. Patent No. 4,918,164) for passive immunotherapy.

Effector cells may generally be obtained in sufficient quantities for adoptive immunotherapy by growth *in vitro*, as described herein. Culture conditions for expanding single antigen-specific effector cells to several billion in number with retention of antigen recognition *in vivo* are well known in the art. Such *in vitro* culture
25 conditions typically use intermittent stimulation with antigen, often in the presence of cytokines (such as IL-2) and non-dividing feeder cells. As noted above, immunoreactive polypeptides as provided herein may be used to rapidly expand antigen-specific T cell cultures in order to generate a sufficient number of cells for immunotherapy. In particular, antigen-presenting cells, such as dendritic, macrophage
30 or B cells, may be pulsed with immunoreactive polypeptides or transfected with one or more polynucleotides using standard techniques well known in the art. For example,

antigen-presenting cells can be transfected with a polynucleotide having a promoter appropriate for increasing expression in a recombinant virus or other expression system. Cultured effector cells for use in therapy must be able to grow and distribute widely, and to survive long term *in vivo*. Studies have shown that cultured effector cells can be
5 induced to grow *in vivo* and to survive long term in substantial numbers by repeated stimulation with antigen supplemented with IL-2 (*see, for example, Cheever et al., Immunological Reviews 157:177, 1997*).

Alternatively, a vector expressing a polypeptide recited herein may be introduced into stem cells taken from a patient and clonally propagated *in vitro* for
10 autologous transplant back into the same patient.

Routes and frequency of administration, as well as dosage, will vary from individual to individual, and may be readily established using standard techniques. In general, the pharmaceutical compositions and vaccines may be administered by injection (*e.g., intracutaneous, intramuscular, intravenous or subcutaneous*), intranasally
15 (*e.g., by aspiration*), orally or in the bed of a resected tumor. Preferably, between 1 and 10 doses may be administered over a 52 week period. Preferably, 6 doses are administered, at intervals of 1 month, and booster vaccinations may be given periodically thereafter. Alternate protocols may be appropriate for individual patients. A suitable dose is an amount of a compound that, when administered as described
20 above, is capable of promoting an anti-tumor immune response, and is at least 10-50% above the basal (*i.e., untreated*) level. Such response can be monitored by measuring the anti-tumor antibodies in a patient or by vaccine-dependent generation of cytolytic effector cells capable of killing the patient's tumor cells *in vitro*. Such vaccines should also be capable of causing an immune response that leads to an improved clinical
25 outcome (*e.g., more frequent remissions, complete or partial or longer disease-free survival*) in vaccinated patients as compared to non-vaccinated patients. In general, for pharmaceutical compositions and vaccines comprising one or more polypeptides, the amount of each polypeptide present in a dose ranges from about 100 μ g to 5 mg per kg of host. Suitable dose sizes will vary with the size of the patient, but will typically
30 range from about 0.1 mL to about 5 mL.

In general, an appropriate dosage and treatment regimen provides the active compound(s) in an amount sufficient to provide therapeutic and/or prophylactic benefit. Such a response can be monitored by establishing an improved clinical outcome (*e.g.*, more frequent remissions, complete or partial, or longer disease-free survival) in treated patients as compared to non-treated patients. Increases in preexisting immune responses to an ovarian carcinoma antigen generally correlate with an improved clinical outcome. Such immune responses may generally be evaluated using standard proliferation, cytotoxicity or cytokine assays, which may be performed using samples obtained from a patient before and after treatment.

10

SCREENS FOR IDENTIFYING SECRETED OVARIAN CARCINOMA ANTIGENS

The present invention provides methods for identifying secreted tumor antigens. Within such methods, tumors are implanted into immunodeficient animals such as SCID mice and maintained for a time sufficient to permit secretion of tumor antigens into serum. In general, tumors may be implanted subcutaneously or within the gonadal fat pad of an immunodeficient animal and maintained for 1-9 months, preferably 1-4 months. Implantation may generally be performed as described in WO 97/18300. The serum containing secreted antigens is then used to prepare antisera in immunocompetent mice, using standard techniques and as described herein. Briefly, 50-100 μ L of sera (pooled from three sets of immunodeficient mice, each set bearing a different SCID-derived human ovarian tumor) may be mixed 1:1 (vol:vol) with an appropriate adjuvant, such as RIBI-MPL or MPL + TDM (Sigma Chemical Co., St. Louis, MO) and injected intraperitoneally into syngeneic immunocompetent animals at monthly intervals for a total of 5 months. Antisera from animals immunized in such a manner may be obtained by drawing blood after the third, fourth and fifth immunizations. The resulting antiserum is generally pre-cleared of *E. coli* and phage antigens and used (generally following dilution, such as 1:200) in a serological expression screen.

The library is typically an expression library containing cDNAs from one or more tumors of the type that was implanted into SCID mice. This expression library may be prepared in any suitable vector, such as λ -screen (Novagen). cDNAs that

30

encode a polypeptide that reacts with the antiserum may be identified using standard techniques, and sequenced. Such cDNA molecules may be further characterized to evaluate expression in tumor and normal tissue, and to evaluate antigen secretion in patients.

5 The methods provided herein have advantages over other methods for tumor antigen discovery. In particular, all antigens identified by such methods should be secreted or released through necrosis of the tumor cells. Such antigens may be present on the surface of tumor cells for an amount of time sufficient to permit targeting and killing by the immune system, following vaccination.

10

METHODS FOR DETECTING CANCER

In general, a cancer may be detected in a patient based on the presence of one or more ovarian carcinoma proteins and/or polynucleotides encoding such proteins in a biological sample (such as blood, sera, urine and/or tumor biopsies) obtained from
15 the patient. In other words, such proteins may be used as markers to indicate the presence or absence of a cancer such as ovarian cancer. In addition, such proteins may be useful for the detection of other cancers. The binding agents provided herein generally permit detection of the level of protein that binds to the agent in the biological sample. Polynucleotide primers and probes may be used to detect the level of mRNA
20 encoding a tumor protein, which is also indicative of the presence or absence of a cancer. In general, an ovarian carcinoma-associated sequence should be present at a level that is at least three fold higher in tumor tissue than in normal tissue

There are a variety of assay formats known to those of ordinary skill in the art for using a binding agent to detect polypeptide markers in a sample. *See, e.g.,*
25 Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, the presence or absence of a cancer in a patient may be determined by (a) contacting a biological sample obtained from a patient with a binding agent; (b) detecting in the sample a level of polypeptide that binds to the binding agent; and (c) comparing the level of polypeptide with a predetermined cut-off value.

30 In a preferred embodiment, the assay involves the use of binding agent immobilized on a solid support to bind to and remove the polypeptide from the

remainder of the sample. The bound polypeptide may then be detected using a detection reagent that contains a reporter group and specifically binds to the binding agent/polypeptide complex. Such detection reagents may comprise, for example, a binding agent that specifically binds to the polypeptide or an antibody or other agent
5 that specifically binds to the binding agent, such as an anti-immunoglobulin, protein G, protein A or a lectin. Alternatively, a competitive assay may be utilized, in which a polypeptide is labeled with a reporter group and allowed to bind to the immobilized binding agent after incubation of the binding agent with the sample. The extent to which components of the sample inhibit the binding of the labeled polypeptide to the
10 binding agent is indicative of the reactivity of the sample with the immobilized binding agent. Suitable polypeptides for use within such assays include full length ovarian carcinoma proteins and portions thereof to which the binding agent binds, as described above.

The solid support may be any material known to those of ordinary skill
15 in the art to which the tumor protein may be attached. For example, the solid support may be a test well in a microtiter plate or a nitrocellulose or other suitable membrane. Alternatively, the support may be a bead or disc, such as glass, fiberglass, latex or a plastic material such as polystyrene or polyvinylchloride. The support may also be a magnetic particle or a fiber optic sensor, such as those disclosed, for example, in U.S.
20 Patent No. 5,359,681. The binding agent may be immobilized on the solid support using a variety of techniques known to those of skill in the art, which are amply described in the patent and scientific literature. In the context of the present invention, the term "immobilization" refers to both noncovalent association, such as adsorption, and covalent attachment (which may be a direct linkage between the agent and
25 functional groups on the support or may be a linkage by way of a cross-linking agent). Immobilization by adsorption to a well in a microtiter plate or to a membrane is preferred. In such cases, adsorption may be achieved by contacting the binding agent, in a suitable buffer, with the solid support for a suitable amount of time. The contact time varies with temperature, but is typically between about 1 hour and about 1 day. In
30 general, contacting a well of a plastic microtiter plate (such as polystyrene or polyvinylchloride) with an amount of binding agent ranging from about 10 ng to about

10 μg , and preferably about 100 ng to about 1 μg , is sufficient to immobilize an adequate amount of binding agent.

Covalent attachment of binding agent to a solid support may generally be achieved by first reacting the support with a bifunctional reagent that will react with
5 both the support and a functional group, such as a hydroxyl or amino group, on the binding agent. For example, the binding agent may be covalently attached to supports having an appropriate polymer coating using benzoquinone or by condensation of an aldehyde group on the support with an amine and an active hydrogen on the binding partner (*see, e.g.*, Pierce Immunotechnology Catalog and Handbook, 1991, at
10 A12-A13).

In certain embodiments, the assay is a two-antibody sandwich assay. This assay may be performed by first contacting an antibody that has been immobilized on a solid support, commonly the well of a microtiter plate, with the sample, such that polypeptides within the sample are allowed to bind to the immobilized antibody.
15 Unbound sample is then removed from the immobilized polypeptide-antibody complexes and a detection reagent (preferably a second antibody capable of binding to a different site on the polypeptide) containing a reporter group is added. The amount of detection reagent that remains bound to the solid support is then determined using a method appropriate for the specific reporter group.

20 More specifically, once the antibody is immobilized on the support as described above, the remaining protein binding sites on the support are typically blocked. Any suitable blocking agent known to those of ordinary skill in the art, such as bovine serum albumin or Tween 20TM (Sigma Chemical Co., St. Louis, MO). The immobilized antibody is then incubated with the sample, and polypeptide is allowed to
25 bind to the antibody. The sample may be diluted with a suitable diluent, such as phosphate-buffered saline (PBS) prior to incubation. In general, an appropriate contact time (*i.e.*, incubation time) is a period of time that is sufficient to detect the presence of polypeptide within a sample obtained from an individual with ovarian cancer. Preferably, the contact time is sufficient to achieve a level of binding that is at least
30 about 95% of that achieved at equilibrium between bound and unbound polypeptide. Those of ordinary skill in the art will recognize that the time necessary to achieve

equilibrium may be readily determined by assaying the level of binding that occurs over a period of time. At room temperature, an incubation time of about 30 minutes is generally sufficient.

Unbound sample may then be removed by washing the solid support
5 with an appropriate buffer, such as PBS containing 0.1% Tween 20™. The second antibody, which contains a reporter group, may then be added to the solid support. Preferred reporter groups include those groups recited above.

The detection reagent is then incubated with the immobilized antibody-polypeptide complex for an amount of time sufficient to detect the bound polypeptide.
10 An appropriate amount of time may generally be determined by assaying the level of binding that occurs over a period of time. Unbound detection reagent is then removed and bound detection reagent is detected using the reporter group. The method employed for detecting the reporter group depends upon the nature of the reporter group. For radioactive groups, scintillation counting or autoradiographic methods are
15 generally appropriate. Spectroscopic methods may be used to detect dyes, luminescent groups and fluorescent groups. Biotin may be detected using avidin, coupled to a different reporter group (commonly a radioactive or fluorescent group or an enzyme). Enzyme reporter groups may generally be detected by the addition of substrate (generally for a specific period of time), followed by spectroscopic or other analysis of
20 the reaction products.

To determine the presence or absence of a cancer, such as ovarian cancer, the signal detected from the reporter group that remains bound to the solid support is generally compared to a signal that corresponds to a predetermined cut-off value. In one preferred embodiment, the cut-off value for the detection of a cancer is
25 the average mean signal obtained when the immobilized antibody is incubated with samples from patients without the cancer. In general, a sample generating a signal that is three standard deviations above the predetermined cut-off value is considered positive for the cancer. In an alternate preferred embodiment, the cut-off value is determined using a Receiver Operator Curve, according to the method of Sackett et al., *Clinical*
30 *Epidemiology: A Basic Science for Clinical Medicine*, Little Brown and Co., 1985, p. 106-7. Briefly, in this embodiment, the cut-off value may be determined from a plot

of pairs of true positive rates (*i.e.*, sensitivity) and false positive rates (100%-specificity) that correspond to each possible cut-off value for the diagnostic test result. The cut-off value on the plot that is the closest to the upper left-hand corner (*i.e.*, the value that encloses the largest area) is the most accurate cut-off value, and a sample generating a
5 signal that is higher than the cut-off value determined by this method may be considered positive. Alternatively, the cut-off value may be shifted to the left along the plot, to minimize the false positive rate, or to the right, to minimize the false negative rate. In general, a sample generating a signal that is higher than the cut-off value determined by this method is considered positive for a cancer.

10 In a related embodiment, the assay is performed in a flow-through or strip test format, wherein the binding agent is immobilized on a membrane, such as nitrocellulose. In the flow-through test, polypeptides within the sample bind to the immobilized binding agent as the sample passes through the membrane. A second, labeled binding agent then binds to the binding agent-polypeptide complex as a solution
15 containing the second binding agent flows through the membrane. The detection of bound second binding agent may then be performed as described above. In the strip test format, one end of the membrane to which binding agent is bound is immersed in a solution containing the sample. The sample migrates along the membrane through a region containing second binding agent and to the area of immobilized binding agent.
20 Concentration of second binding agent at the area of immobilized antibody indicates the presence of a cancer. Typically, the concentration of second binding agent at that site generates a pattern, such as a line, that can be read visually. The absence of such a pattern indicates a negative result. In general, the amount of binding agent immobilized on the membrane is selected to generate a visually discernible pattern when the
25 biological sample contains a level of polypeptide that would be sufficient to generate a positive signal in the two-antibody sandwich assay, in the format discussed above. Preferred binding agents for use in such assays are antibodies and antigen-binding fragments thereof. Preferably, the amount of antibody immobilized on the membrane ranges from about 25 ng to about 1 μ g, and more preferably from about 50 ng to about
30 500 ng. Such tests can typically be performed with a very small amount of biological sample.

Of course, numerous other assay protocols exist that are suitable for use with the tumor proteins or binding agents of the present invention. The above descriptions are intended to be exemplary only. For example, it will be apparent to those of ordinary skill in the art that the above protocols may be readily modified to use
5 ovarian carcinoma polypeptides to detect antibodies that bind to such polypeptides in a biological sample. The detection of such ovarian carcinoma protein specific antibodies may correlate with the presence of a cancer.

A cancer may also, or alternatively, be detected based on the presence of T cells that specifically react with an ovarian carcinoma protein in a biological sample.
10 Within certain methods, a biological sample comprising CD4⁺ and/or CD8⁺ T cells isolated from a patient is incubated with an ovarian carcinoma protein, a polynucleotide encoding such a polypeptide and/or an APC that expresses at least an immunogenic portion of such a polypeptide, and the presence or absence of specific activation of the T cells is detected. Suitable biological samples include, but are not limited to, isolated
15 T cells. For example, T cells may be isolated from a patient by routine techniques (such as by Ficoll/Hypaque density gradient centrifugation of peripheral blood lymphocytes). T cells may be incubated *in vitro* for 2-9 days (typically 4 days) at 37°C with an ovarian carcinoma protein (*e.g.*, 5 - 25 µg/ml). It may be desirable to incubate another aliquot of a T cell sample in the absence of ovarian carcinoma protein to serve as a control. For
20 CD4⁺ T cells, activation is preferably detected by evaluating proliferation of the T cells. For CD8⁺ T cells, activation is preferably detected by evaluating cytolytic activity. A level of proliferation that is at least two fold greater and/or a level of cytolytic activity that is at least 20% greater than in disease-free patients indicates the presence of a cancer in the patient.

25 As noted above, a cancer may also, or alternatively, be detected based on the level of mRNA encoding an ovarian carcinoma protein in a biological sample. For example, at least two oligonucleotide primers may be employed in a polymerase chain reaction (PCR) based assay to amplify a portion of an ovarian carcinoma protein cDNA derived from a biological sample, wherein at least one of the oligonucleotide primers is
30 specific for (*i.e.*, hybridizes to) a polynucleotide encoding the ovarian carcinoma protein. The amplified cDNA is then separated and detected using techniques well

known in the art, such as gel electrophoresis. Similarly, oligonucleotide probes that specifically hybridize to a polynucleotide encoding an ovarian carcinoma protein may be used in a hybridization assay to detect the presence of polynucleotide encoding the tumor protein in a biological sample.

5 To permit hybridization under assay conditions, oligonucleotide primers and probes should comprise an oligonucleotide sequence that has at least about 60%, preferably at least about 75% and more preferably at least about 90%, identity to a portion of a polynucleotide encoding an ovarian carcinoma protein that is at least 10 nucleotides, and preferably at least 20 nucleotides, in length. Preferably,
10 oligonucleotide primers and/or probes hybridize to a polynucleotide encoding a polypeptide described herein under moderately stringent conditions, as defined above. Oligonucleotide primers and/or probes which may be usefully employed in the diagnostic methods described herein preferably are at least 10-40 nucleotides in length. In a preferred embodiment, the oligonucleotide primers comprise at least 10 contiguous
15 nucleotides, more preferably at least 15 contiguous nucleotides, of a DNA molecule having a sequence provided herein. Techniques for both PCR based assays and hybridization assays are well known in the art (*see*, for example, Mullis et al., *Cold Spring Harbor Symp. Quant. Biol.*, 51:263, 1987; Erlich ed., *PCR Technology*, Stockton Press, NY, 1989).

20 One preferred assay employs RT-PCR, in which PCR is applied in conjunction with reverse transcription. Typically, RNA is extracted from a biological sample such as a biopsy tissue and is reverse transcribed to produce cDNA molecules. PCR amplification using at least one specific primer generates a cDNA molecule, which may be separated and visualized using, for example, gel electrophoresis. Amplification
25 may be performed on biological samples taken from a test patient and from an individual who is not afflicted with a cancer. The amplification reaction may be performed on several dilutions of cDNA spanning two orders of magnitude. A two-fold or greater increase in expression in several dilutions of the test patient sample as compared to the same dilutions of the non-cancerous sample is typically considered
30 positive.

In another embodiment, ovarian carcinoma proteins and polynucleotides encoding such proteins may be used as markers for monitoring the progression of cancer. In this embodiment, assays as described above for the diagnosis of a cancer may be performed over time, and the change in the level of reactive polypeptide(s) evaluated. For example, the assays may be performed every 24-72 hours for a period of 6 months to 1 year, and thereafter performed as needed. In general, a cancer is progressing in those patients in whom the level of polypeptide detected by the binding agent increases over time. In contrast, the cancer is not progressing when the level of reactive polypeptide either remains constant or decreases with time.

10 Certain *in vivo* diagnostic assays may be performed directly on a tumor. One such assay involves contacting tumor cells with a binding agent. The bound binding agent may then be detected directly or indirectly via a reporter group. Such binding agents may also be used in histological applications. Alternatively, polynucleotide probes may be used within such applications.

15 As noted above, to improve sensitivity, multiple ovarian carcinoma protein markers may be assayed within a given sample. It will be apparent that binding agents specific for different proteins provided herein may be combined within a single assay. Further, multiple primers or probes may be used concurrently. The selection of tumor protein markers may be based on routine experiments to determine combinations that results in optimal sensitivity. In addition, or alternatively, assays for tumor proteins provided herein may be combined with assays for other known tumor antigens.

DIAGNOSTIC KITS

25 The present invention further provides kits for use within any of the above diagnostic methods. Such kits typically comprise two or more components necessary for performing a diagnostic assay. Components may be compounds, reagents, containers and/or equipment. For example, one container within a kit may contain a monoclonal antibody or fragment thereof that specifically binds to an ovarian carcinoma protein. Such antibodies or fragments may be provided attached to a support material, as described above. One or more additional containers may enclose elements, such as reagents or buffers, to be used in the assay. Such kits may also, or alternatively,

contain a detection reagent as described above that contains a reporter group suitable for direct or indirect detection of antibody binding.

Alternatively, a kit may be designed to detect the level of mRNA encoding an ovarian carcinoma protein in a biological sample. Such kits generally
5 comprise at least one oligonucleotide probe or primer, as described above, that hybridizes to a polynucleotide encoding an ovarian carcinoma protein. Such an oligonucleotide may be used, for example, within a PCR or hybridization assay. Additional components that may be present within such kits include a second oligonucleotide and/or a diagnostic reagent or container to facilitate the detection of a
10 polynucleotide encoding an ovarian carcinoma protein.

The following Examples are offered by way of illustration and not by way of limitation.

EXAMPLES

Example 1Identification of Representative Ovarian Carcinoma Protein cDNAs

5

This Example illustrates the identification of cDNA molecules encoding ovarian carcinoma proteins.

Anti-SCID mouse sera (generated against sera from SCID mice carrying late passage ovarian carcinoma) was pre-cleared of E. coli and phage antigens and used
10 at a 1:200 dilution in a serological expression screen. The library screened was made from a SCID-derived human ovarian tumor (OV9334) using a directional RH oligo(dT) priming cDNA library construction kit and the λ Screen vector (Novagen). A bacteriophage lambda screen was employed. Approximately 400,000 pfu of the amplified OV9334 library were screened.

15 196 positive clones were isolated. Certain sequences that appear to be novel are provided in Figures 1A-1S and SEQ ID NOs:1 to 71. Three complete insert sequences are shown in Figures 2A-2C (SEQ ID NOs:72 to 74). Other clones having known sequences are presented in Figures 15A-15EEE (SEQ ID NOs:82 to 310). Database searches identified the following sequences that were substantially identical to
20 the sequences presented in Figures 15A-15EEE.

These clones were further characterized using microarray technology to determine mRNA expression levels in a variety of tumor and normal tissues. Such analyses were performed using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions. PCR amplification products were arrayed on slides, with
25 each product occupying a unique location in the array. mRNA was extracted from the tissue sample to be tested, reverse transcribed and fluorescent-labeled cDNA probes were generated. The microarrays were probed with the labeled cDNA probes and the slides were scanned to measure fluorescence intensity. Data was analyzed using Synteni's provided GEMtools software. The results for one clone (13695, also referred
30 to as O8E) are shown in Figure 3.

Example 2

Identification of Ovarian Carcinoma cDNAs using Microarray Technology

5

This Example illustrates the identification of ovarian carcinoma polynucleotides by PCR subtraction and microarray analysis. Microarrays of cDNAs were analyzed for ovarian tumor-specific expression using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions (and essentially as described by
10 Schena et al., *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997).

A PCR subtraction was performed using a tester comprising cDNA of four ovarian tumors (three of which were metastatic tumors) and a driver of cDNA from five normal tissues (adrenal gland, lung, pancreas, spleen and brain). cDNA fragments
15 recovered from this subtraction were subjected to DNA microarray analysis where the fragments were PCR amplified, adhered to chips and hybridized with fluorescently labeled probes derived from mRNAs of human ovarian tumors and a variety of normal human tissues. In this analysis, the slides were scanned and the fluorescence intensity was measured, and the data were analyzed using Synteni's GEMtools software. In
20 general, sequences showing at least a 5-fold increase in expression in tumor cells (relative to normal cells) were considered ovarian tumor antigens. The fluorescent results were analyzed and clones that displayed increased expression in ovarian tumors were further characterized by DNA sequencing and database searches to determine the novelty of the sequences.

25 Using such assays, an ovarian tumor antigen was identified that is a splice fusion between the human T-cell leukemia virus type I oncoprotein TAX (*see* Jin et al., *Cell* 93:81-91, 1998) and an extracellular matrix protein called osteonectin. A splice junction sequence exists at the fusion point. The sequence of this clone is presented in Figure 4 and SEQ ID NO:75. Osteonectin, unspliced and unaltered, was
30 also identified from such assays independently.

Further clones identified by this method are referred to herein as 3f, 6b, 8e, 8h, 12c and 12h. Sequences of these clones are shown in Figures 5 to 9 and SEQ ID NOs:76 to 81. Microarray analyses were performed as described above, and are presented in Figures 10 to 14. A full length sequence encompassing clones 3f, 6b, 8e and 12h was obtained by screening an ovarian tumor (SCID-derived) cDNA library. This 2996 base pair sequence (designated O772P) is presented in SEQ ID NO:311, and the encoded 914 amino acid protein sequence is shown in SEQ ID NO:312. PSORT analysis indicates a Type 1a transmembrane protein localized to the plasma membrane.

In addition to certain of the sequences described above, this screen identified the following sequences:

Sequence	Comments
OV4vG11 (SEQ ID NO:313)	human clone 1119D9 on chromosome 20p12
OV4vB11 (SEQ ID NO:314)	human UWGC:y14c094 from chromosome 6p21
OV4vD9 (SEQ ID NO:315)	human clone 1049G16 chromosome 20q12-13.2
OV4vD5 (SEQ ID NO:316)	human KIAA0014 gene
OV4vC2 (SEQ ID NO:317)	human KIAA0084 gene
OV4vF3 (SEQ ID NO:318)	human chromosome 19 cosmid R31167
OV4VC1 (SEQ ID NO:319)	novel
OV4vH3 (SEQ ID NO:320)	novel
OV4vD2 (SEQ ID NO:321)	novel
O815P (SEQ ID NO:322)	novel
OV4vC12 (SEQ ID NO:323)	novel
OV4vA4 (SEQ ID NO:324)	novel
OV4vA3 (SEQ ID NO:325)	novel
OV4v2A5 (SEQ ID NO:326)	novel
O819P (SEQ ID NO:327)	novel
O818P (SEQ ID NO:328)	novel
O817P (SEQ ID NO:329)	novel
O816P (SEQ ID NO:330)	novel
Ov4vC5 (SEQ ID NO:331)	novel

Sequence	Comments
21721 (SEQ ID NO:332)	human lumican
21719 (SEQ ID NO:333)	human retinoic acid-binding protein II
21717 (SEQ ID NO:334)	human26S proteasome ATPase subunit
21654 (SEQ ID NO:335)	human copine I
21627 (SEQ ID NO:336)	human neuron specific gamma-2 enolase
21623 (SEQ ID NO:337)	human geranylgeranyl transferase II
21621 (SEQ ID NO:338)	human cyclin-dependent protein kinase
21616 (SEQ ID NO:339)	human prepro-megakaryocyte potentiating factor
21612 (SEQ ID NO:340)	human UPH1
21558 (SEQ ID NO:341)	human RalGDS-like 2 (RGL2)
21555 (SEQ ID NO:342)	human autoantigen P542
21548 (SEQ ID NO:343)	human actin-related protein (ARP2)
21462 (SEQ ID NO:344)	human huntingtin interacting protein
21441 (SEQ ID NO:345)	human 90K product (tumor associated antigen)
21439 (SEQ ID NO:346)	human guanine nucleotide regulator protein (tim1)
21438 (SEQ ID NO:347)	human Ku autoimmune (p70/p80) antigen
21237 (SEQ ID NO:348)	human S-laminin
21436 (SEQ ID NO:349)	human ribophorin I
21435 (SEQ ID NO:350)	human cytoplasmic chaperonin hTRiC5
21425 (SEQ ID NO:351)	humanEMX2
21423 (SEQ ID NO:352)	human p87/p89 gene
21419 (SEQ ID NO:353)	human HPBR11-7
21252 (SEQ ID NO:354)	human T1-227H
21251 (SEQ ID NO:355)	human cullin I
21247 (SEQ ID NO:356)	kunitz type protease inhibitor (KOP)
21244-1 (SEQ ID NO:357)	human protein tyrosine phosphatase receptor F (PTPRF)
21718 (SEQ ID NO:358)	human LTR repeat
OV2-90 (SEQ ID NO:359)	novel

Sequence	Comments
Human zinc finger (SEQ ID NO:360)	
Human polyA binding protein (SEQ ID NO:361)	
Human pleitrophin (SEQ ID NO:362)	
Human PAC clone 278C19 (SEQ ID NO:363)	
Human LLRep3 (SEQ ID NO:364)	
Human Kunitz type protease inhib (SEQ ID NO:365)	
Human KIAA0106 gene (SEQ ID NO:366)	
Human keratin (SEQ ID NO:367)	
Human HIV-1TAR (SEQ ID NO:368)	
Human glia derived nexin (SEQ ID NO:369)	
Human fibronectin (SEQ ID NO:370)	
Human ECMproBM40 (SEQ ID NO:371)	
Human collagen (SEQ ID NO:372)	
Human alpha enolase (SEQ ID NO:373)	
Human aldolase (SEQ ID NO:374)	
Human transf growth factor BIG H3 (SEQ ID NO:375)	
Human SPARC osteonectin (SEQ ID NO:376)	
Human SLP1 leucocyte protease (SEQ ID NO:377)	
Human mitochondrial ATP synth (SEQ ID NO:378)	
Human DNA seq clone 461P17 (SEQ ID NO:379)	
Human dbpB pro Y box (SEQ ID NO:380)	
Human 40 kDa keratin (SEQ ID NO:381)	
Human arginosuccinate synth (SEQ ID NO:382)	
Human acidic ribosomal phosphoprotein (SEQ ID NO:383)	
Human colon carcinoma laminin binding pro (SEQ ID NO:384)	

This screen further identified multiple forms of the clone O772P, referred to herein as 21013, 21003 and 21008. PSORT analysis indicates that 21003 (SEQ ID NO:386; translated as SEQ ID NO:389) and 21008 (SEQ ID NO:387; translated as SEQ ID NO:390) represent Type 1a transmembrane protein forms of

O772P. 21013 (SEQ ID NO:385; translated as SEQ ID NO:388) appears to be a truncated form of the protein and is predicted by PSORT analysis to be a secreted protein.

Additional sequence analysis resulted in a full length clone for O8E
5 (2627 bp, which agrees with the message size observed by Northern analysis; SEQ ID NO:391). This nucleotide sequence was obtained as follows: the original O8E sequence (OrigO8Econs) was found to overlap by 33 nucleotides with a sequence from an EST clone (IMAGE#1987589). This clone provided 1042 additional nucleotides upstream
10 of the original O8E sequence. The link between the EST and O8E was confirmed by sequencing multiple PCR fragments generated from an ovary primary tumor library using primers to the unique EST and the O8E sequence (ESTxO8EPCR). Full length status was further indicated when anchored PCR from the ovary tumor library gave several clones (AnchoredPCR cons) that all terminated upstream of the putative start methionine, but failed to yield any additional sequence information. Figure 16 presents
15 a diagram that illustrates the location of each partial sequence within the full length O8E sequence.

Two protein sequences may be translated from the full length O8E. For "a" (SEQ ID NO:393) begins with a putative start methionine. A second form "b" (SEQ ID NO:392) includes 27 additional upstream residues to the 5' end of the nucleotide
20 sequence.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.
25

SUMMARY OF SEQUENCE LISTING

SEQ ID NOs:1-71 are ovarian carcinoma antigen polynucleotides shown in Figures 1A-1S.

SEQ ID NOs:72-74 are ovarian carcinoma antigen polynucleotides
30 shown in Figures 2A-2C.

SEQ ID NO:75 is the ovarian carcinoma polynucleotide 3g (Figure 4).

SEQ ID NO:76 is the ovarian carcinoma polynucleotide 3f (Figure 5).
SEQ ID NO:77 is the ovarian carcinoma polynucleotide 6b (Figure 6).
SEQ ID NO:78 is the ovarian carcinoma polynucleotide 8e (Figure 7A).
SEQ ID NO:79 is the ovarian carcinoma polynucleotide 8h (Figure 7B).
5 SEQ ID NO:80 is the ovarian carcinoma polynucleotide 12e (Figure 8).
SEQ ID NO:81 is the ovarian carcinoma polynucleotide 12h (Figure 9).
SEQ ID NOs:82-310 are ovarian carcinoma antigen polynucleotides
shown in Figures 15A-15EEE.

SEQ ID NO:311 is a full length sequence of ovarian carcinoma
10 polynucleotide O772P.

SEQ ID NO:312 is the O772P amino acid sequence.

SEQ ID NOs:313-384 are ovarian carcinoma antigen polynucleotides.

SEQ ID NOs:385-390 present sequences of O772P forms.

SEQ ID NO:391 is a full length sequence of ovarian carcinoma
15 polynucleotide O8E.

SEQ ID NOs:392-393 are protein sequences encoded by O8E.

CLAIMS

1. An isolated polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and
- (b) complements of the foregoing polynucleotides.

2. A polypeptide according to claim 1, wherein the polypeptide comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of 1-81, 313-331, 359, 366, 379, 385-387 or 391; and
- (b) complements of such polynucleotides.

3. An isolated polynucleotide encoding at least 5 amino acid residues of a polypeptide according to claim polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391; and
- (b) complements of the foregoing polynucleotides

4. A polynucleotide according to claim 3, wherein the polynucleotide encodes an immunogenic portion of the polypeptide.
5. A polynucleotide according to claim 3, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387, 391 or a complement of any of the foregoing sequences.
6. An isolated polynucleotide complementary to a polynucleotide according to claim 3.
7. An expression vector comprising a polynucleotide according to claim 3 or claim 6.
8. A host cell transformed or transfected with an expression vector according to claim 7.
9. A pharmaceutical composition comprising a polypeptide according to claim 1, in combination with a physiologically acceptable carrier.
10. A pharmaceutical composition according to claim 9, wherein the polypeptide comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391.
11. A vaccine comprising a polypeptide according to claim 1, in combination with a non-specific immune response enhancer.
12. A vaccine according to claim 11, wherein the polypeptide comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391.
13. A pharmaceutical composition comprising:

(a) a polynucleotide encoding an ovarian carcinoma polypeptide, wherein the polypeptide comprises at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391; and

(ii) complements of the foregoing polynucleotides; and

(b) a physiologically acceptable carrier.

14. A pharmaceutical composition according to claim 13, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387, 391 or a complement of any of the foregoing sequences.

15. A vaccine comprising:

(a) a polynucleotide encoding an ovarian carcinoma polypeptide, wherein the polypeptide comprises at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and

(ii) complements of the foregoing polynucleotides; and

16. A vaccine according to claim 15, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391.

17. A pharmaceutical composition comprising:

(a) an antibody that specifically binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and
 - (ii) complements of such polynucleotides; and
- (b) a physiologically acceptable carrier.

18. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of an agent selected from the group consisting of:

(a) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
 - (ii) complements of such polynucleotides;
- (b) a polynucleotide encoding a polypeptide as recited in (a); and
- (c) an antibody that specifically binds to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
 - (ii) complements of such polynucleotides;
- and thereby inhibiting the development of ovarian cancer in the patient.

19. A method according to claim 18, wherein the agent is present within a pharmaceutical composition according to any one of claims 9, 13 or 17.
20. A method according to claim 18, wherein the agent is present within a vaccine according to any one of claims 11, 15 or 18.
21. A fusion protein comprising at least one polypeptide according to claim 1.
22. A polynucleotide encoding a fusion protein according to claim 21.
23. A pharmaceutical composition comprising a fusion protein according to claim 21 in combination with a physiologically acceptable carrier.
24. A vaccine comprising a fusion protein according to claim 21 in combination with a non-specific immune response enhancer.
25. A pharmaceutical composition comprising a polynucleotide according to claim 22 in combination with a physiologically acceptable carrier.
26. A vaccine comprising a polynucleotide according to claim 22 in combination with a non-specific immune response enhancer.
27. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of a pharmaceutical composition according to claim 23 or claim 25.
28. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of a vaccine according to claim 23 or claim 26.

29. A pharmaceutical composition, comprising:

(a) an antigen presenting cell that expresses an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides; and

(b) a pharmaceutically acceptable carrier or excipient.

30. A vaccine, comprising:

(a) an antigen presenting cell that expresses an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides; and

(b) a non-specific immune response enhancer.

31. A vaccine comprising:

(a) an anti-idiotypic antibody or antigen-binding fragment thereof that is specifically bound by an antibody that specifically binds to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- (ii) complements of such polynucleotides; and
- (b) non-specific immune response enhancer.

32. A vaccine according to claim 30 or claim 31, wherein the immune response enhancer is an adjuvant.

33. A pharmaceutical composition, comprising:

(a) a T cell that specifically reacts with an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- (ii) complements of such polynucleotides; and
- (b) a physiologically acceptable carrier.

34. A vaccine, comprising:

(a) a T cell that specifically reacts with an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- (ii) complements of such polynucleotides; and
- (b) a non-specific immune response enhancer.

35. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to the patient an effective amount of a pharmaceutical composition according to claim 29 or claim 33.

36. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to the patient an effective amount of a vaccine according to any one of claims 30, 31 or 34.

37. A method for stimulating and/or expanding T cells, comprising contacting T cells with:

(a) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides;

(b) a polynucleotide encoding such a polypeptide; and/or

(c) an antigen presenting cell that expresses such a polypeptide under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells.

38. A method according to claim 37, wherein the T cells are cloned prior to expansion.

39. A method for stimulating and/or expanding T cells in a mammal, comprising administering to a mammal a pharmaceutical composition comprising:

(a) one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one

or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; and

(b) a physiologically acceptable carrier or excipient;
and thereby stimulating and/or expanding T cells in a mammal.

40. A method for stimulating and/or expanding T cells in a mammal, comprising administering to a mammal a vaccine comprising:

(a) one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; and

- (b) a non-specific immune response enhancer;
and thereby stimulating and/or expanding T cells in a mammal.

41. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient T cells prepared according to the method of claim 39 or claim 40.

42. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

- (a) incubating CD4⁺ T cells isolated from a patient with one or more of:
 - (i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
 - polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
 - complements of such polynucleotides;
 - (ii) a polynucleotide encoding an ovarian carcinoma polypeptide;or
- (iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;
such that T cells proliferate; and
- (b) administering to the patient an effective amount of the proliferated T cells, and therefrom inhibiting the development of ovarian cancer in the patient.

43. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

- (a) incubating CD4⁺ T cells isolated from a patient with one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;
or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

such that T cells proliferate;

(b) cloning one or more proliferated cells; and

(c) administering to the patient an effective amount of the cloned T cells.

44. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a) incubating CD8⁺ T cells isolated from a patient with one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

- (ii) a polynucleotide encoding an ovarian carcinoma polypeptide;
 - or
 - (iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;
- such that T cells proliferate; and
- (b) administering to the patient an effective amount of the proliferated T cells, and therefrom inhibiting the development of ovarian cancer in the patient.

45. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

- (a) incubating CD8⁺ T cells isolated from a patient with one or more of:
 - (i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
 - polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
 - complements of such polynucleotides;
 - (ii) a polynucleotide encoding an ovarian carcinoma polypeptide;
 - or
 - (iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;
- such that the T cells proliferate;
- (b) cloning one or more proliferated cells ; and
 - (c) administering to the patient an effective amount of the cloned T cells.

46. A method for identifying a secreted tumor antigen, comprising the steps of:

- (a) implanting tumor cells in an immunodeficient mammal;
- (b) obtaining serum from the immunodeficient mammal after a time sufficient to permit secretion of tumor antigens into the serum;
- (c) immunizing an immunocompetent mammal with the serum;
- (d) obtaining antiserum from the immunocompetent mammal; and
- (e) screening a tumor expression library with the antiserum, and therefrom identifying a secreted tumor antigen.

47. A method according to claim 46, wherein the immunodeficient mammal is a SCID mouse and wherein the immunocompetent mammal is an immunocompetent mouse.

48. A method for identifying a secreted ovarian carcinoma antigen, comprising the steps of:

- (a) implanting ovarian carcinoma cells in a SCID mouse;
- (b) obtaining serum from the SCID mouse after a time sufficient to permit secretion of ovarian carcinoma antigens into the serum;
- (c) immunizing an immunocompetent mouse with the serum;
- (d) obtaining antiserum from the immunocompetent mouse; and
- (e) screening an ovarian carcinoma expression library with the antiserum, and therefrom identifying a secreted ovarian carcinoma antigen.

49. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

- (a) contacting a biological sample obtained from a patient with a binding agent that binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
- (ii) complements of the foregoing polynucleotides;
- (b) detecting in the sample an amount of polypeptide that binds to the binding agent; and
- (c) comparing the amount of polypeptide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

50. A method according to claim 49, wherein the binding agent is an antibody.

51. A method according to claim 50, wherein the antibody is a monoclonal antibody.

52. A method according to claim 49, wherein the cancer is ovarian cancer.

53. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

- (a) contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- (ii) complements of the foregoing polynucleotides;

- (b) detecting in the sample an amount of polypeptide that binds to the binding agent;

- (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d) comparing the amount of polypeptide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

54. A method according to claim 53, wherein the binding agent is an antibody.

55. A method according to claim 54, wherein the antibody is a monoclonal antibody.

56. A method according to claim 53, wherein the cancer is ovarian cancer.

57. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides;

(b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; and

(c) comparing the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

58. A method according to claim 57, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

59. A method according to claim 57, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

60. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides;

(b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide;

(c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d) comparing the amount of polynucleotide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

61. A method according to claim 60, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

62. A method according to claim 60, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

63. A diagnostic kit, comprising:

(a) one or more antibodies or antigen-binding fragments thereof that specifically bind to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides.; and

(b) a detection reagent comprising a reporter group.

64. A kit according to claim 63, wherein the antibodies are immobilized on a solid support.

65. A kit according to claim 63, wherein the solid support comprises nitrocellulose, latex or a plastic material.

66. A kit according to claim 63, wherein the detection reagent comprises an anti-immunoglobulin, protein G, protein A or lectin.

67. A kit according to claim 63, wherein the reporter group is selected from the group consisting of radioisotopes, fluorescent groups, luminescent groups, enzymes, biotin and dye particles.

68. A diagnostic kit, comprising:

(a) an oligonucleotide comprising 10 to 40 nucleotides that hybridize under moderately stringent conditions to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides; and

(b) a diagnostic reagent for use in a polymerase chain reaction or hybridization assay.

SEQUENCE LISTING

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<120> COMPOSITIONS AND METHODS FOR THE THERAPY AND
DIAGNOSIS OF OVARIAN CANCER

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<140> PCT

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atttggaagc	catttagaaa	atcttttgga	ttttcctgtg	gtttatggca	atatgaatgg	900
agcttattac	tggggtgagg	gacagcttac	tccatttgac	cagattgttt	ggctaacaca	960
tcccgaagaa	tgattttgtc	aggaattatt	gttatttaat	aaatatttca	ggatattttt	1020
cctctacaat	aaagtaacaa	t				1041

<210> 19

<211> 1043

<212> DNA

<213> Homo sapien

<400> 19

ctctgtggaa	aactgatgag	gaatgaattt	accattaccc	atgtttctcat	ccccaagcaa	60
agtgtctgggt	ctgattactg	caacacagag	aacgaagaag	aacttttcct	catacaggat	120
cagcagggcc	tcatcacact	gggctggatt	catactcacc	ccacacagac	cgcgtttctc	180
tccagtgtcg	acctacacac	tcactgctct	taccagatga	tggtgccaga	gtcagtagcc	240
attgtttgct	cccccaagtt	ccaggaaact	ggattcttta	aactaactga	ccatggacta	300
gaggagattt	cttcctgtcg	ccagaaagga	tttcatccac	acagcaagga	tccacctctg	360
ttctgtagct	gcagccacgt	gactgtttgt	gacagagcag	tgaccatcac	agaccttcga	420
tgagcgtttg	agtccaacac	cttccaagaa	caacaaaacc	atatcagtgt	actgtagccc	480
cttaatttaa	gctttctaga	aagctttgga	agtttttgta	gatagtagaa	aggggggcat	540
cacctgagaa	agagctgatt	ttgtatttca	ggtttgaaaa	gaaataactg	aacatatttt	600
ttaggcaagt	cagaaagaga	acatggtcac	ccaaaagcaa	ctgtaactca	gaaattaagt	660
tactcagaaa	ttaagtagct	cagaaattaa	gaaagaatgg	tataatgaac	ccccatatac	720
ccttccttct	ggattcacca	attgttaaca	tttttttcct	ctcagctatc	cttctaattt	780
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atttggaagc	catttagaaa	atcttttgga	ttttcctgtg	gtttatggca	atatgaatgg	900
agcttattac	tggggtgagg	gacagcttac	tccatttgac	cagattgttt	ggctaacaca	960
tcccgaagaa	tgattttgtc	aggaattatt	gttatttaat	aaatatttca	ggatattttt	1020
cctctacaat	aaagtaacaa	tta				1043

<210> 20

<211> 448

<212> DNA

<213> Homo sapien

<400> 20

ggacgacaag	gccatggcga	tatcggatcc	gaattcaagc	ctttggaatt	aaataaacct	60
ggaacaggga	aggtgaaagt	tggagtgaga	tgtcttccat	atctatacct	ttgtgcacag	120
ttgaatggga	actgtttggg	tttagggcat	cttagagtgt	attgatggaa	aaagcagaca	180

```
ggaactggtg ggaggtcaag tggggaagtt ggtgaatgtg gaataactta cctttgtgct 240
ccacttaaac cagatgtgtt gcagctttcc tgacatgcaa ggatctactt taattccaca 300
ctctcattaa taaattgaat aaaaggggaat gttttggcac ctgatataat ctgccaggct 360
atgtgacagt aggaaggaat ggtttcccct aacaagccca atgcactggt ctgactttat 420
aaattattta ataaaatgaa ctattatc 448
```

<210> 21

<211> 411

<212> DNA

<213> Homo sapien

<400> 21

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ggcagtgaca ttcacatca tgggaaccac cttccctttt cttcaggatt ctctgtagtg 60
gaagagagca cccagtgttg ggctgaaaac atctgaaagt agggagaaga acctaaaata 120
atcagtatct cagagggctc taagggtgcca agaagtctca ctggacattt aagtgccaac 180
aaaggcatac tttcggaatc gccaaagtcaa aactttctaa cttctgtctc tctcagagac 240
aagtgagact caagagtcta ctgcttttagt ggcaactaca gaaaactggt gttaccacaga 300
aaaacaggag caattagaaa tggttccaat atttcaaagc tccgcaaaca ggatgtgctt 360
tcctttgccc atttaggggt tcttctcttt cctttctctt tattaaccac t 411
```

<210> 22

<211> 896

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(896)

<223> n = A,T,C or G

<400> 22

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tgcgctgaaa acaacggcct cctttactgt taaaatgcag ccacagggtgc ttagccgtgg 60
gcattctaac caccagcctc tgtggggggc aggtgggcgt ccctgtgggc ctctgggccc 120
acgtccagcc tctgtcctct gccttcggtt cttcgacagt gttcccggca tccctggtca 180
cttggtactt ggcgtgggcc tctgtgctg ctcacgcagc tccctccagn ggtcggcccg 240
cttcaccgca gcctcatggt gtgtccggag gctgctcacg gcctcctcct tctcgcgcag 300
ggctgtcttc accctccggn gcaactcctc cagctccagc tgctggcggg cctgcagcgt 360
ggccagctcg gccttgacct gcgcgctctc ctctcarag gctgccagcc ggtcctcgaa 420
ctcttgccgg atcacctggg ccagggttgc ggcgtcgcta gaaagctgct cgttcaccgc 480
ctgcgcattc tccagcgccc gctccttctg ccgcacaagg ccctgcagac gcagattctc 540
gccctcggcc tccccaagct ggcccttcag ctccgagcac cgctcctgaa gcttccgctc 600
cgactgctcc agctcggaga gctcggcctc gtacttgctc cgtaagcgct tgatgcggct 660
ctcggcagcc ttctcactct cctccttggc cagcgccatg tcggcctcca gccggtgaat 720
gaccagctca atctccttgt cccggccttt cgggatttct tccctcagct cctgttcccg 780
gttcagcagc cagcctcct ccttctggtt ggggcgggcc tcccacgcct gcctctccag 840
ctccagctgc tgcttcaggg tattcagctc catctggcgg gcctgcagcg tggcca 896
```

<210> 23

<211> 111

<212> DNA

<213> Homo sapien

<400> 23

```
caacttatta cttgaaatta taatatagcc tgtccgtttg ctgtttccag gctgtgatat 60
attttcctag tggtttgact ttaaaaataa ataaggttta attttctccc c 111
```

<210> 24
 <211> 531
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(531)
 <223> n = A,T,C or G

<400> 24
 tgcaagtcac gggagtttat ttatttaatt tttttcccca gatggagact ctgtcgccca 60
 ggctggagtg caatgggtgtg atcttggtct actgcaacct ccacctctg ggttcaagcg 120
 attctcctgc cacagcctcc cgagtagctg ggattacagg tggccgccac cacaccagc 180
 taatttttat atttttagta aagacagggt ttcccatgt tggccaggct ggtcttgaac 240
 ttctgacctc aggtgatcca cctgcctcgg cctcccaaag tgttgggatt acaggcgtga 300
 gctacccgtg cctggccagc cactggagtt taaaggacag tcatgttggc tccagcctaa 360
 ggcggcatct tcccccatca gaaagccgc ggctcctgta cctcaaaata gggcacctgt 420
 aaagtcagtc agtgaagtct ctgctctaac tggccaccgc gggccattgg cntctgacac 480
 agccttgcca ggangcctgc atctgcaaaa gaaaagttca ctctcttcc g 531

<210> 25
 <211> 471
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(471)
 <223> n = A,T,C or G

<400> 25
 cagagaatct kagaaagatg tcgcgttttc ttttaargaa tgagagaagc ccatttgtat 60
 ccctgaatca ttgagaaaag gcggcggtgg cgacagcggc gacctaggga tcgatctgga 120
 gggacttggg gagcgtgcag agacctctag ctcgagcgcg agggacctcc cgccgggatg 180
 cctggggagc agatggaccc tactggaagt cagttggatt cagatttctc tcagcaagat 240
 actccttgcc tgataattga agattctcag cctgaaagcc aggttctaga ggatgattct 300
 ggttctcact tcagtatgct atctcgacac ctctctaate tccagacgca caaagaaaat 360
 cctgtgttgg atgttgngtc caatccttga acaaacagct ggagaagaac gaggagaccg 420
 gtaatagtgg gttcaatgaa catttgaaag aaaaccaggt tgcagaccct g 471

<210> 26
 <211> 541
 <212> DNA
 <213> Homo sapien

<400> 26
 gactgtcctg aacaaggac ctctgaccag agagctgcag gagatgcaga gtggtggcag 60
 gagtggaagc caaagaacac ccaccttcc ccttgaagg agtagagcaa ccatacagaag 120
 ataactgttt attgctctgg tcaaacaagt ctctctgagt tgacaaaacc tcaggctctg 180
 gtgacttctg aatctgcagt ccactttcca taagtctctg tgcagacaac tgttcttttg 240
 ctccatagc agcaacagat gctttggggc taaaaggcat gtcctctgac cttgcagggtg 300
 gtggattttg ctcttttaca acatgtacat cttactggg ctgtgctgtc acagggatgt 360
 ccttgctgga ctgttctgct atggggatat ctctgttggg ctgttcttca tgcttaattg 420

cagtattagc atccacatca gacagcctgg tataaccaga gttgggtggtt actgattgta 480
 gctgctcttt gtccacttca tatggcacia gtattttcct caacatcctg gctctgggaa 540
 g 541

<210> 27

<211> 461

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(461)

<223> n = A,T,C or G

<400> 27

gaaatgtata tttaatcatt ctcttgaacg atcagaactc traaatcagt tttctataac 60
 arcatgtaat acagtcaccg tggtccaag gtccaggaag gcagtgggta acacatgaag 120
 agtgtgggaa gggggctgga aacaaagtat tcttttcctt caaagcttca ttcctcaagg 180
 cctcaattca agcagtcatt gtccttgctt tcaaaagtct gtgtgtgctt catggaagg 240
 atatgtttgt tgccttaatt tgaattgtgg ccaggaaggg tctggagatc taaattcaga 300
 gtaagaaaac ctgagctaga actcaggcat ttctcttaca gaacttggct tgcagggtag 360
 aatgaangga aagaaactta gaagctcaac aagctgaaga taatcccatc aggcatttcc 420
 cataggcctt gcaactctgt tcaactgagag atgttatcct g 461

<210> 28

<211> 541

<212> DNA

<213> Homo sapien

<400> 28

agtctggagt gagcaaaca gagcaagaaa caarragaag ccaaaagcag aaggctccaa 60
 tatgaacaag ataaatctat cttcaaagac atattagaag ttgggaaaat aattcatgtg 120
 aactagacaa gtgtgttaag agtgataagt aaaatgcacg tggagacaag tgcattccca 180
 gatctcaggg acctccccct gectgtcacc tggggagtga gaggacagga tagtgcattg 240
 tctttgtctc tgaattttta gttatatgtg ctgtaattgt gctctgagga agccccctga 300
 aagtctatcc caacatatcc acatcttata ttccacaaat taagctgtag tatgtaccct 360
 aagacgtgc taattgactg ccacttcgca actcaggggc ggctgcattt tagtaatggg 420
 tcaaatgatt cactttttat gatgcttccc aagggtgcctt ggcttctctt cccaactgac 480
 aaatgcccaa gttgagaaaa atgatcataa ttttagcata aaccgagcaa tcggcgaccc 540
 c 541

<210> 29

<211> 411

<212> DNA

<213> Homo sapien

<400> 29

tagctgtctt cctcactctt atggcaatga ccccatatct taatggatta agataatgaa 60
 agtgtatttc ttacactctg tatctatcac cagaagctga ggtgatagcc cgcttgtcat 120
 tgtcatccat attctgggac tcaggcggga actttctgga atattgccag ggagcatggc 180
 agaggggcac agtgcattct gggggaatgc acattggctc agcctgggta atgagtgata 240
 tacattacct ctgttcacaa ctcatgccc agcaccagtc acaaggcccc accaaatacc 300
 agagcccaag aatgtagtc ctgttgatat ggttttgtct tgtcccaacc caaatctcat 360
 cttgaattgt aagctcccat aattcccatg tgttggtgga gggacctggt g 411

<210> 30
 <211> 511
 <212> DNA
 <213> Homo sapien

<400> 30
 atcatgagga tgttaccaaa gggatggtac taaaccattt gtattcgtct gttttcacac 60
 tgctttgaag atactacctg agactgggta atttataaac aaaagagatt taattgactc 120
 acagttctgc atggctgaag aggcctcagg aaacttacag tcatggtgga aggcaaagga 180
 ggagcaaggc atgtcttaca tgtcagtagg agagagagcg agagcaggag aacctgccac 240
 ttataaacca ttcatgctc ataactccct atcatgagaa aaacatggag gaaaccaccc 300
 tcatgatcca atcacctccc gccaggtccc tccctcgaca cgtggggatt ataattcagg 360
 attagaggga cacagagaca aaccatatca tcattcatga gaaatccacc ctcatagtc 420
 aatcagctcc taccaggccc cacctccaac actggggatt gcaattcaac atgagatttg 480
 gatggggaca cagattcaaa ccatatcata c 511

<210> 31
 <211> 827
 <212> DNA
 <213> Homo sapien

<400> 31
 catggccttt ctcttagag gccagaggtg ctgccctggc tgggagtga gctccaggca 60
 ctaccagctt tctgatttt ccggtttggt ccatgtgaag agctaccacg agccccagcc 120
 tcacagtgtc cactcaaggg cagcttggtc ctcttgctct gcagaggcag gctggtgtga 180
 ccctgggaac ttgacccggg aacaacaggt ggcccagagt gagtgtggcc tggccctca 240
 acctagtgtc cgtcctcctc tctcctggag ccagtcttga gtttaaaggc attaatgtgt 300
 agatacaagc tccttggtgc tggaaaaaca cccctctgct gataaagctc agggggcact 360
 gaggaagcag agggcccttg ggggtgccct cctgaagaga gcgtcaggcc atcagctctg 420
 tccctctggt gtcccacgt ctgttctca cctccatct ctgggagcag ctgcacctga 480
 ctggccacgc gggggcagtg gaggcacagg ctgagggtgg ccgggctacc tggcaccccta 540
 tggtttacaa agtagagttg gccaggtttc ctccacctg aggggagcac tctgactcct 600
 aacagtcttc cttgccctgc catcatctgg ggtggctggc tgtcaagaaa ggccgggcat 660
 gctttctaaa cacagccaca ggaggcttgt agggcatctt ccaggtgggg aaacagtctt 720
 agataagtaa ggtgacttgc ctaaggcctc ccagcacctt tgatcttggg gtctcacagc 780
 agactgcatg tsaacaactg gaaccgaaaa catgcctcag tataaaa 827

<210> 32
 <211> 291
 <212> DNA
 <213> Homo sapien

<400> 32
 ccagaacctc cttctctttg gagaatgggg aggcctcttg gagacacaga gggtttcacc 60
 ttgatgacc tctagagaaa ttgcccaaga agcccacctt ctggteccaa cctgcagacc 120
 ccacagcagt cagttggtca ggccctgctg tagaagggtca cttggctcca ttgctgctt 180
 ccaaccaatg ggcaggagag aaggccttta tttctgcccc acccattctc ctgtaccagc 240
 acctccgttt tcagtcagyg ttgtccagca acggtaccgt ttacacagtc a 291

<210> 33
 <211> 491
 <212> DNA
 <213> Homo sapien

<400> 33

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tgcattgtagt tttatttatg tgttttsgtc tggaaaacca agtgtcccag cagcatgact      60
gaacatcact cacttcccct acttgatcta caaggccaac gccgagagcc cagaccagga      120
ttccaaacac actgcacgag aatattgtgg atccgctgtc aggtaagtgt ccgtcactga      180
cccaracgct gttacgtggc acatgactgt acagtgccac gtaacagcac tgtacttttc      240
tcccatgaac agttacctgc catgtatcta catgattcag aacattttga acagttaatt      300
ctgacacttg aataatccca tcaaaaaccg taaaatcact ttgatgtttg taacgacaac      360
atagcatcac tttagcagag aatcatctgg aaaaacagaa caacgaatac atacatctta      420
aaaaatgctg ggggtgggcca ggcacagctt cacgcctgta atcccagcac tttgggaggg      480
ttaagcgggt g

```

<210> 34

<211> 521

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(521)

<223> n = A,T,C or G

<400> 34

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tggggcgga aagaagccaag gccaaaggagc tgggtgcggca gctgcagctg gagggccgagg      60
agcagaggaa gcagaagaag cggcagagtg tgtcgggcct gcacagatac cttcacttgc      120
tggatggaaa tgaaaattac ccgtgtcttg tggatgcaga cggatgatgtg atttccttcc      180
caccaataac caacagttag aagacaaagg ttaagaaaac gacttctgat ttgttttttg      240
aagtaacaag tgccaccagt ctgcagattt gcaaggatgt catggatgcc ctcatcttga      300
aaatggcaag aaatgaaaaa gtacacttta gaaaataaag aggaaggatc actctcagat      360
actgaagccg atgcagtctc tggacaactt ccagatccca caacgaatcc cagtgtctgga      420
aaggacgggc ccttccttct ggtggtggaa cangtcccgg tggatgatct tggaanggaa      480
cctgaangtg gtgtaccccg tccaaggccg accttgcca c

```

<210> 35

<211> 161

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(161)

<223> n = A,T,C or G

<400> 35

```

tcccgcgctc gcagggcncg tgccacctgc cygtccgccc gctcgctcgc tgcggcgccg      60
cgccgcgctg ccgaccgyca gcatgetgcc gagagtgggc tgccccgcgc tgccgctgcc      120
gccgcgcgcg ctgctgccgc tgctgccgct gctgctgctg c

```

<210> 36

<211> 341

<212> DNA

<213> Homo sapien

<400> 36

```

ggcgggtagg catggaactg agaagaacga agaagctttc agactacgtg gggaagaatg      60
aaaaaaccaa aattatcgcc aagattcagc aaaggggaca gggagctcca gcccagagac      120
ctattattag cagtgaggag cagaagcagc tgatgctgta ctatcacaga agacaagagg      180

```

```

agctcaagag attggaagaa aatgatgatg atgcctatatt aaactcacca tgggcggata 240
acactgcttt gaaaagacat tttcatggag tgaaagacat aaagtggaga ccaagatgaa 300
gttcaccagc tgatgacact tccaaagaga ttagctcacc t 341

```

```

<210> 37
<211> 521
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(521)
<223> n = A,T,C or G

```

```

<400> 37
tctgaagggt aaatgtttca tctaaatagg gataatgrta aacacctata gcatagagtt 60
gtttgagatt aaatgagata atacatgtaa aattatgtgc ctggcataca gcaagattgt 120
tggtgtgtgt gatgatgatg atgatgatga taatattttt ctatccccag tgcacaactg 180
cttgaacctt ttagataatc aatacatgtt tcttgaactg agatcaattt ccccatgttg 240
tctgactgat gaagccctac attttcttct agaggagatg acatttgagc aagatcttaa 300
agaaaatcag atgccttcac ctgaccactg cttggtgatc ccatggcact ttgtacatct 360
ctccattagc tctcatctca ccagcccatc attattgtat gtgctgcctt ctgaagcttg 420
cagctggcta ccatcmggtg gaataaaaaat catcctttca taaaatagtg accctccttt 480
tttatttgca tttcccaaag ccaagcaccg tggganggta g 521

```

```

<210> 38
<211> 461
<212> DNA
<213> Homo sapien

```

```

<400> 38
tatgaagaag ggaaaagaag ataatttgtg aaagaaatgg gtccagttac tagtctttga 60
aaagggtcag tctgtagctc ttcttaatga gaataggcag ctttcagttg ctcagggtca 120
gatttcctta gtggtgtatc taatcacagg aaacatctgt ggttccctcc agtctctttc 180
tgggggactt gggcccactt ctcatctcat ttaattagag gaaatagaac tcaaagtaca 240
atttactgtt gtttaacaat gccacaaaga catggttggg agctatttct tgatttgtgt 300
aaaatgttgt ttttgtgtgc tcataatggt tccaaaaaatt ggggtgtggc caaagagaga 360
tactgttaca gaagccagca agaagacctc tgttcattca ccccccggt gatatcagga 420
attgactcca gtgtgtgcaa atccagtttg gcctatcttc t 461

```

```

<210> 39
<211> 769
<212> DNA
<213> Homo sapien

```

```

<400> 39
tgagggactg attggtttgc tctctgctat tcaattcccc aagcccactt gttcctgcag 60
cgtctcctct ctcatctcct ttagttgtac cctctctttc atctgagacc tttccttctt 120
gatgtcgcct ttctctcttc ttgctttttc tgatgttctg ctgagcatgt tctgggtgct 180
tctcatctgc atcatctcct tcagatgctg tagcttcttc ctctcttttc tgctcctttt 240
tctttttctt ttttttgggg ggcttgcctc ctgactgcag ttgaggggcc ccagggtcct 300
ggcctttgag acgagccagg aaggcctgct cctgggcctc taggcgagca agcttggcct 360
tcattgtgat cccaagacgg gcagccttgt gtgctgttcg ccctcacag gcttggagca 420
gcattctcat agtcagaatc tttggggact tggacccttg gttgtcgtca tctactgcagc 480
tctccaagtc tttgtttggc ttctctccac ctgaagtcaa ttagccatc ttcacaaact 540

```


tctgatacag	caagttgggc	ttgggatgat	tataacgggt	ggtctcctta	gaaaggctcc	600
ttatctgtac	tccatcctgc	ccagtttcca	ctaccaagtt	ggccgcagtc	ttgttgaaga	660
gctcattcca	ccagtgggtt	gtgaactcct	tggcagggtc	atgtcctacc	ccatgagtgt	720
cttgcttcag	ygtcaccctg	agagcctgag	tgataccatt	ctccttccg		769

<210> 40

<211> 292

<212> DNA

<213> Homo sapien

<400> 40

gacaacatga	aataaatcct	agaggacaaa	attaaactca	atagagtgtg	gtctagttaa	60
aaactcgaaa	aatgagcaag	tctgggtggg	gtggaggaag	ggctatacta	taaatccaag	120
tgggcctcct	gatcttaaca	agccatgctc	attatacaca	tctctgaact	ggacatacca	180
cctttacgca	ggaaacaggg	cttggaaact	ctaagggaaa	ttaacatgca	ccacccacat	240
ctaacctacc	tgccgggtag	gtaccatccc	tgcttcgctg	aatcagtgct	tc	292

<210> 41

<211> 406

<212> DNA

<213> Homo sapien

<400> 41

ttggaattaa	ataaacctgg	aacagggaag	gtgaaagttg	gagtgagatg	tcttccatat	60
ctataccttt	gtgcacagtt	gaatgggaac	tgtttgggtt	tagggcatct	tagagttgat	120
tgatggaaaa	agcagacagg	aactgggtgg	aggtcaagtg	gggaagttgg	tgaatgtgga	180
ataacttacc	tttgtgctcc	acttaaacca	gatgtgttgc	agctttcctg	acatgcaagg	240
atctacttta	attccacact	ctcattaata	aattgaataa	aagggaatgt	tttggcacct	300
gatataatct	gccaggctat	gtgacagtag	gaagggaatg	tttcccctaa	caagcccaat	360
gcactggtct	gactttataa	attatttaat	aaaatgaact	attatc		406

<210> 42

<211> 381

<212> DNA

<213> Homo sapien

<400> 42

aaactggacc	tgcaacaggg	acatgaattt	actgcarggt	ctgagcaagc	tcagcccctc	60
tacctcaggg	ccccacagcc	atgactacct	cccccaggag	cgggaggggtg	aagggggcct	120
gtctctgcaa	gtggagccag	agtggaggaa	tgagctctga	agacacagca	cccagccttc	180
tcgcaccagc	caagccttaa	ctgcctgcct	gaccctgaac	cagaaccag	ctgaactgcc	240
cctccaaggg	acaggaaggc	tgggggaggg	agttttacaac	ccaagccatt	ccaccccctc	300
ccctgctggg	gagaatgaca	catcaagctg	ctaacaattg	ggggaagggg	aaggaagaaa	360
actctgaaaa	caaaatcttg	t				381

<210> 43

<211> 451

<212> DNA

<213> Homo sapien

<400> 43

catgcgtttc	accactgttg	gccaggctgg	tctcgaactc	ctggcctcaa	gcaatccacc	60
cgcttcagcc	tccaaaagtg	ctgggattac	agatgtgagc	catggcacca	tgccaaaagg	120
ctatattcct	ggctctgtgt	ttccgagact	gcttttaatc	ccaacttctc	tacatttaga	180
ttaaaaaata	ttttattcat	ggtcaatctg	gaacataatt	actgcatctt	aagtttccac	240

tgatgtatat	agaaggctaa	aggcacaatt	tttatcaa	at	ctagtagagt	aaccaa	acat	300
aaaatcatta	attactttca	acttaataac	taattgacat	tcctcaaaag	agctgttttc			360
aatcctgata	ggttctttat	tttttcaaaa	tatatattgcc	atgggatgct	aatttgcaat			420
aaggcgcata	atgagaatac	cccaaactgg	a					451

<210> 44

<211> 521

<212> DNA

<213> Homo sapien

<400> 44

gttggacccc	cagggactgg	aaagacactt	cttgcccagag	ctgtggcggg	agaagctgat	60
gttccttttt	attatgcttc	tggatccgaa	tttgatgaga	tgtttggtgg	tgtgggagcc	120
agccgtatca	gaaatctttt	tagggaagca	aaggcgaatg	ctccttggtg	tatatattat	180
gatgaattag	attctgttgg	tgggaagaga	attgaatctc	caatgcatcc	atattcaagg	240
cagaccataa	atcaacttct	tgctgaaatg	gatggtttta	aacccaatga	aggagttatc	300
ataataggag	ccacaaactt	cccagaggca	ttagataatg	ccttaatacc	gtcctggctg	360
ttttgacatg	caagttacag	ttccaaggcc	agatgtaaaa	ggtcgaacag	aaattttgaa	420
atggtatctc	aataaaataa	agtttgatca	atcccgttga	tccagaaatt	atagcctcga	480
ggtactggtg	gcttttcggg	aagcagagtt	gggagaatct	t		521

<210> 45

<211> 585

<212> DNA

<213> Homo sapien

<400> 45

gcctacaaca	tccagaaaga	gtctaccctg	cacctggtgc	tscgtctcag	aggtgggatg	60
cagatcttcg	tgaagaccct	gactggtaag	accatcactc	tcgaagtgga	gccgagtgc	120
accatygaga	acgtcaaagc	aaagatccar	gacaaggaag	gcrtycctcc	tgaccagcag	180
aggttgatct	ttgccggaaa	gcagctggaa	gatggdcgca	ccctgtctga	ctacaacatc	240
cagaaagagt	cyaccctgca	cctgggtgctc	cgtctcagag	gtgggatgca	ratcttcgtg	300
aagaccctga	ctggtaagac	catcaccctc	gaggtggagc	ccagtgcac	catcgagaat	360
gtcaaggcaa	agatccaaga	taagggaaggc	atccctcctg	atcagcagag	gttgatcttt	420
gctgggaaac	agctggaaga	tggacgcacc	ctgtctgact	acaacatcca	gaaagagtcc	480
actctgcact	tggtcctgcg	cttgaggggg	ggtgtctaag	tttccccttt	taaggtttcm	540
acaaatttca	ttgcactttc	ctttcaataa	agttgttgca	ttccc		585

<210> 46

<211> 481

<212> DNA

<213> Homo sapien

<400> 46

gaactggggc	ctgagcccaa	gtcatgcctt	gtgtccgcat	ctgccgtgtc	acctctgtkc	60
ctgccctca	cccctccctc	ctggtcttct	gagccagcac	catctccaaa	tagcctattc	120
cttcctgcaa	atcacacaca	catgcggggc	acacatacct	gctgccctgg	agatggggaa	180
gtaggagaga	tgaatagagg	ccatacatt	gtacagaagg	aggggcaggt	gcagataaaa	240
gcagcagacc	cagcggcagc	tgaggtgcat	ggagcacggt	tggggccggc	attgggctga	300
gcacctgatg	ggcctcatct	cgtgaatcct	cgaggcagcg	ccacagcaga	ggagttaagt	360
ggcacctggg	ccgagcagag	caggagactg	agggtcagag	tggaggctaa	gctgccctgg	420
aactcctcaa	tcttgccctg	cccctagtat	gaagccccct	tcctgcccc	acaattcctg	480
a						481

<210> 47

<211> 461
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(461)
<223> n = A,T,C or G

<400> 47
atggatctta ctttgccacc caggttggag tgcagtgtcg caatcttggc tcaactgcagc 60
cttaacctcc caggctcaag ctatcctcct gccaaagcct tccacatagc tgggactaca 120
ggtacacngc caccacaccc agctaaaatt tttgtatttt ttgtagagac gggatctcgc 180
cacgttgccc aggetgggtcc catcctgacc tcaagcagat ctgcccacct cagcccccca 240
acgtgctagg attacaggcg tgagccaccg caccagcct ttgttttgct tttaatggaa 300
tcaccagttc cctccgtgt ctcagcagca gctgtgagaa atgctttgca tctgtgacct 360
ttatgaaggg gaacttccat gctgaatgag ggtaggatta catgctcctg tttcccgagg 420
gtcaagaaag cctcagactc cagcatgata agcaggggtga g 461

<210> 48
<211> 571
<212> DNA
<213> Homo sapien

<400> 48
ataggggctt taaggaggga attcaggttc aatgaggtcg taaggccagg gctcttatcc 60
agtaagactg gggtccttag atgagaaaga gacacccgag gtcttctct ctgccgtgtg 120
aggatgcatc aagaaggcgg ccgtctgcaa gcgaaggaga ggccgcacca gaaaccgaca 180
ccttcattct ggacttgtag cctctagaac tgagaaaata actgtctgtt ggttaagcca 240
cccagtttgt agtattctct tatggcttcc taagcagact aacaaacaaa cacccaaaat 300
taactgatgg cttecgctgtc ttctgtaaaa attgctatga gagaactttt cactcactgt 360
tttgagttt ctccctcagt cctgggttct ttcttctcac ataatcccaa tttcaattta 420
tagttcatgg ccaggcaga gtattcattc acggcatctc ctgagctaaa ccagcacctg 480
ctctgctcac ttcttgactg gctgtcattc atcagccctc ttgcagagat ttcatttcct 540
cccgtgccag gtacttcacg caecaagctc a 571

<210> 49
<211> 511
<212> DNA
<213> Homo sapien

<400> 49
ggataatgaa gttgttttat ttagcttggc caaaaaggca tattcctcta ttttcttata 60
caacaaatat ccccaaaata aagcaagcat atatatcttg aatgtgtaat aatccagtga 120
taaacaagag cagtacttta aaagaaaaaa aaatatgtat ttctgtcagg ttaaaatgag 180
aatcaaaacc atttactctg ctaactcatt attttttgct ttcttttttg ttaagagagg 240
caatgcaata cactgaaaaa ggtttttatc ttatctggca ttggaattag acatattcaa 300
acccagagccc ccatttccaa actttaagac cacaaacaag taatttactt ttctgaacat 360
tggttttttc tggaaaatgg gaattataaa atagactttg cagactctta tgagattaaa 420
taagataatg tatgaaattc tttcttcttt ttacttctt tttccttttt gagatggagt 480
ctcaccctcg caccaggtg ggagtacagt g 511

<210> 50
<211> 561
<212> DNA

<213> Homo sapien

<400> 50

ccactgcact	ccagcctggg	tgacggagtg	agactctgtc	tcaaaaaaac	aaacaaacaa	60
acaaacaaaa	aactgaaaag	gaaatagagt	tcctctttcc	tcatatatga	atatattatt	120
tcaacagatt	gttgatcacc	taccatatgc	ttggtattgt	tctaattgct	ggggatacag	180
caagagggtc	tgagaactt	catggagcat	gaaagtaaat	aaacaaagtt	aatttcaagg	240
ccaggcatgg	ttgctcacac	ctttagtccc	agcactttgg	gaggctgagg	caggtggatc	300
acttggggccc	aggagttcaa	ggctgcagtg	agccaagatt	gtgccactac	tctccaggct	360
gggcaacaga	gcaagacctt	gtctcagggg	gaacaaaaag	ttaatttcag	attttgttaa	420
gtgctgtaaa	ggaagtaaat	aggttgatat	tcaagagagc	acctgaaggc	caggcgtggt	480
ggctcacgcc	tgtggtctaa	cgctttggga	agcccagagc	ggcggatcac	aaggtcagga	540
gaattttggc	caggcatggt	g				561

<210> 51

<211> 451

<212> DNA

<213> Homo sapien

<400> 51

agaatccatt	tattgggttt	taaactagtt	acacaactga	aatcagtttg	gcactacttt	60
atacagggat	tacgcctgtg	tatgcegcaca	cttaaatact	gtaccaggac	cactgctgtg	120
cttaggtctg	tattcagtc	ttcagcatgt	agatactaaa	aataactgtg	agtgttcctt	180
taaggaagac	tgtacagggt	gtgttgcaag	atgacattca	ccaatttggt	aattatttca	240
accagaaga	tacctttcac	tctataaact	tgctataggc	aaacatgtgg	tgtagcatt	300
gagagatgca	cacaaaaatg	ttacataaaa	gttcagacat	tctaatagata	agtgaactga	360
aaaaaaaaaa	aaccccat	ctcaattttt	gtaacaagat	aaagaaaata	atttaaaaac	420
acaaaaaatg	gcattcagtg	ggtacaaagc	c			451

<210> 52

<211> 682

<212> DNA

<213> Homo sapien

<400> 52

caaatattta	atataaatct	ttgaaacaag	ttcagakgaa	ataaaaaatca	aagtttgcaa	60
aaacgtgaag	attaacttaa	ttgtcaaata	ttcctcattg	ccccaaatca	gtattttttt	120
tattttctatg	caaaagtatg	ccttcaaact	gcttaaatga	tatatgatat	gatacacaaa	180
ccagtttttca	aatagtaaag	ccagtcattc	tgcaattgta	agaaataggt	aaaagattat	240
aagacacctt	acacacacac	acacacacac	acacacacgt	gtgcaccgcc	aatgacaaaa	300
aacaatttgg	cctctcctaa	aataagaaca	tgaagaccct	taattgctgc	caggagggaa	360
cactgtgtca	cccctcccta	caatccaggt	agtttccttt	aatccaatag	caaactctggg	420
catatttgag	aggagtgatt	ctgacagcca	csgttgaaat	cctgtgggga	accattcatg	480
tccacccact	ggtgccctga	aaaaatgcc	ataatttttc	gtccccactt	ctgctgctgt	540
ctcttcacata	tcctcacata	gaccccagac	ccgctggccc	ctggctgggc	atcgcatgtc	600
tggtagagca	agtcataagg	ctcgtctttg	acgtcacaga	agcgatacac	caaattgcct	660
ggtcggatcat	tgtcataacc	ag				682

<210> 53

<211> 311

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(311)

<223> n = A,T,C or G

<400> 53

tttgacttta	gtaggggtct	gaactattta	ttttactttg	ccmgtaatat	ttaraccyta	60
tatatctttc	attatgccat	cttatcttct	aatgbcaagg	gaacagwtgc	taamctggct	120
tctgcattwa	tcacattaaa	aatggctttc	ttggaaaatc	ttcttgatat	gaataaagga	180
tcttttavag	ccatcattta	aagcmggnnt	ctctccaaca	cgagtctgct	sasgggggk	240
gagctgtgaa	ctctggctga	aggctttccc	atacacactg	caatgacmtg	gtttctgacc	300
agbgtgagtt	a					311

<210> 54

<211> 561

<212> DNA

<213> Homo sapien

<400> 54

agagaagccc	cataaatgca	atcagtgtgg	gaaggccttc	agtcagagct	caagcctttt	60
cctccatcat	cgggttcata	ctggagagaa	accctatgta	tgtaatgaat	gcggcagagc	120
ctttggtttt	aactctcatc	ttactgaaca	cgtaaggatt	cacacaggag	aaaaacccta	180
tgtttgtaat	gagtgcggca	aagcctttcg	tcggagttcc	actcttggtc	agcatcgaag	240
agttcacact	ggggagaagc	cctaccagtg	cgttgaatgt	gggaaagctt	tcagccagag	300
ctcccagctc	accctacatc	agccgagttc	acactggaga	gaagccctat	gactgtggtg	360
actgtgggaa	ggccttcagc	cggagggtcaa	ccctcattca	gcatcagaaa	gttcacagcg	420
gagagactcg	taagtgcaga	aaacatggtc	cagcctttgt	tcattggctcc	agcctcacag	480
cagatggaca	gattcccact	ggagagaagc	acggcagaaac	ctttaaccat	ggtgcaaatac	540
tcattctgcg	ctggacagtt	c				561

<210> 55

<211> 811

<212> DNA

<213> Homo sapien

<400> 55

gagacaggggt	ctcactttgt	cacccagggt	ggaatgcagt	ggtgcgatct	tacgtagctc	60
actgcagccc	tgacctcctg	gactcaaaca	attctcctgc	ctcagccctg	caagtagctg	120
ggactgtggg	tgcatgccac	catgcctggc	taacttttgt	agtttttgta	aagatgggggt	180
tttgccatgt	tgcatatgct	ggtcttgaac	tcctgagctc	aaacgatctg	cccacctcgg	240
cctcccagaa	tggtgggatt	acaggggtaa	accaccacgc	ctggccccc	tagggatttc	300
ttagcatcca	cttgctcact	gagattaatc	ataagagatg	ataagcactg	gaagaaaaaa	360
atttttacta	ggctttggat	atttttttcc	tttttcagct	ttatacagag	gattggatct	420
ttagttttcc	tttaactgat	aataaaaacat	tgaaaggaaa	taagtttacc	tgagattcac	480
agagataacc	ggcatcactc	ccttgctcaa	ttccagtctt	taccacatca	attattttca	540
gaggtgcagg	ataaaggcct	ttagtctgct	ttcgcacttt	ttcttccact	tttttgtaaa	600
cctgttgcc	gacaaaatga	attgacagcg	tatgccatga	ctattccatt	tgtcaggcat	660
acgctgtcaa	tttttccacc	aatcccttgt	ctctctttgg	agagatcttc	ttatcagcta	720
gtcctttggc	aaaagtaatt	gcaacttctt	ctaggtattc	tattgtccgt	tccactgggtg	780
gaacccctgg	gaccaggact	aaaacctcca	g			811

<210> 56

<211> 591

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
<222> (1)...(591)
<223> n = A,T,C or G

<400> 56
atctcatata tatatttctt cctgacttta tttgcttgct tctgncacgc atttaaaata 60
tcacagagac caaaatagag cggctttctg gtggaacgca tggcagtcac aggacaaaat 120
acaaaactag ggggctctgt cttctcatac atcatacaat tttcaagtat tttttttatg 180
tacaaagagc tactctatct gaaaaaaaat taaaaaataa atgagacaag atagtttatg 240
catcctagga agaaagaatg ggaagaaaga acggggcagt tgggtacaga ttctgtccc 300
ctgttcccag ggaccactac cttcctgcc a ctgagttccc ccacagcctc acccatcatg 360
tcacagggca agtgccaggg taggtgggga ccagtggaga caggaaccag caacatactt 420
tggcctggaa gataaggaga aagtctcaga aacacactgg tgggaagcaa tcccacnggc 480
cgtgccccan gagcttccca cctgctgctg gctccctggg tggctttggg aacagcttgg 540
gcaggccctt ttgggtgggg nccaactggg cctttgggcc cgtgtggaaa g 591

<210> 57
<211> 481
<212> DNA
<213> Homo sapien

<400> 57
aaacattgag atggaatgat agggtttccc agaatcaggt ccatatttta actaaatgaa 60
aattatgatt tatagccttc tcaaatacct gccatacttg atatctcaac cagagctaata 120
tttacctctt tacaaattaa ataagcaagt aactggatcc acaatttata atacctgtca 180
attttttctg tattaaacct ctatcatagt ttaagcctat tagggactt aatccttaca 240
aataaacagg tttaaaatca cctcaatagg caactgcct tctggttttc ttctttgact 300
aaacaatctg aatgcttaag attttccact ttgggtgcta gcagtacaca gtgttacact 360
ctgtattcca gacttcttaa attatagaaa aaggaatgta cactttttgt attctttctg 420
agcagggccg ggaggcaaca tcattctacca tggtagggac ttgtatgcat ggactacttt 480
a 481

<210> 58
<211> 141
<212> DNA
<213> Homo sapien

<400> 58
actctgtcgc ccaggctgga gcccabtggm gcgatctcga ctccctgcaa gctmcgcctc 60
acaggwtcat gccattctcc tgccctcagca tctggagtag ctgggactac aggcgccagc 120
caccatgccc agctaatttt t 141

<210> 59
<211> 191
<212> DNA
<213> Homo sapien

<400> 59
accttaaaaga cataggagaa tttatactgg gagagaaagc ttacaaatgt aaggtttctg 60
acaagacttg ggagtattc acacctggaa caacatactg gacttcacac tggabagaaa 120
ccttacaagt gtaatgagtg tggcaaagcc tttggcaagc agtcaacact tattcaccat 180
caggcaattc a 191

<210> 60
<211> 480

<212> DNA

<213> Homo sapien

<400> 60

agtcaggatc	atgatggctc	agtttccac	agcgatgaat	ggagggccaa	atatgtgggc	60
tattacatct	gaagaacgta	ctaagcatga	taaacagttt	gataacctca	aaccttcagg	120
aggttacata	acagggtgatc	aagcccgtac	ttttttccta	cagtcaggtc	tgcggcccc	180
ggtttttagct	gaaatatggg	ccttatcaga	tctgaacaag	gatgggaaga	tggaaccagca	240
agagttctct	atagctatga	aactcatcaa	gttaaagttg	gagggccaac	agctgcctgt	300
agtcctccct	cctatcatga	aacaaccccc	tatgttctct	ccactaatct	ctgctcgttt	360
tgggatggga	agcatgcccc	atctgtccat	tcatcagcca	ttgcctccag	ttgcacctat	420
agcaacaccc	ttgtcttctg	ctacttcagg	gaccagtatt	cctccctaata	gatgcctgct	480

<210> 61

<211> 381

<212> DNA

<213> Homo sapien

<400> 61

ctttcgatgtt	ccttcaattt	gtcacgtttg	attttatgaa	gttggtcaag	ggctaactgc	60
tgtgtattat	agctttctct	gagttccttc	agctgattgt	taaatgaatc	catttctgag	120
agcttagatg	cagtttcttt	ttcaagagca	tctaattgtt	ctttaagtct	ttggcataat	180
tcttcctttt	ctgatgactt	tetatgaagt	aaactgatcc	ctgaatcagg	tgtgttactg	240
agctgcatgt	ttttaattct	ttcgtttaat	agctgcttct	cagggaccag	atagataagc	300
ttattttgat	attccttaag	ctcttggtga	agttgttcga	ttcccataat	ttccagggtca	360
cactgggttat	cccaaacttc	t				381

<210> 62

<211> 906

<212> DNA

<213> Homo sapien

<400> 62

gtggaggtga	aacggaggga	agaaaggggg	ctacctcagg	agcgagggac	aaagggggcg	60
tgaggcacct	aggccgcggc	accccggcga	caggaagccg	tcctgaaccg	ggctaccggg	120
taggggaagg	gccccgcgtg	tcctcgcagg	gccccagagc	tggagtcggc	tccacagccc	180
cgggcccgtc	gcttctcaact	tcctggacct	ccccggcgcc	cgggcctgag	gaactggctcg	240
gcggagggag	aagaggaaaac	agacttgagc	agctccccgt	tgtctcgcaa	ctccactgcc	300
gaggaactct	catttcttcc	ctcgtcctt	cacccccac	ctcatgtaga	aaggtgctga	360
agcgtccgga	gggaagaaga	acctgggcta	ccgtcctggc	cttcccmccc	ccttcccggg	420
gcgctttgg	gggcgtggag	ttgggggttg	gggggtgggt	gggggttctt	ttttggagt	480
ctgggggaact	tttttccctt	cttcagggtca	ggggaaagg	aatgcccaat	tcagagagac	540
atgggggcaa	gaaggacggg	agtggaggag	cttctggaac	tttgagccg	tcacgaggag	600
gcggcagctc	taacagcaga	gagcgtcacc	gcttggtatc	gaagcacaag	cggcataagt	660
ccaaacactc	caaagacatg	gggttggtga	ccccgaagc	agcatccctg	ggcacagtta	720
tcaaaccctt	ggtggagtat	gatgatata	gctctgattc	cgacaccttc	tccgatgaca	780
tggccttcaa	actagaccga	agggagaacg	acgaacgtcg	tggatcagat	cggagcgacc	840
gcctgcacaa	acatcgtcac	caccagcaca	ggcgttcccc	ggacttacta	aaagctaaac	900
agaccg						906

<210> 63

<211> 491

<212> DNA

<213> Homo sapien

<400> 63

gacatgtttg	cctgcagggg	accagagaca	atgggattag	ccagtgctca	ctgttcttta	60
tgcttccaga	gaggatggg	acagctctca	ggtcagaatc	caggctgaga	aggccatgct	120
ggttgggggc	ccccggaagc	acggtcgga	tcctccctgg	catcagcgta	gacccgctgc	180
tcaggcttgg	ggtaccaaac	tcatgctctg	tactgttttg	gccccatgcg	gtgagaggaa	240
aacctagaaa	aagattggtc	gtgctaagga	atcagctgcc	ccctcatcct	ccgcatccaa	300
tgctggtgac	aacatattcc	ctctcccagg	acacagactc	ggtgactcca	cactgggctg	360
agtggcctct	ggaggctcgt	ggcctaaggc	agggctccgt	aaggctgata	ggctgaactg	420
ggtggggtga	gggtttctga	cccttcgctt	cccatcccat	aaccgctgtc	aatgagctca	480
cactgtggtc	a					491

<210> 64

<211> 511

<212> DNA

<213> Homo sapien

<400> 64

gatggcatgg	tcgttgctaa	tgtgcctgct	gggatggagc	acttctctct	gtgagcccag	60
gggacccgcc	tgtccctgga	gcttggggca	aggaggggaag	agtgatacca	ggaaggtggg	120
gctgcagcca	ggggccagag	tcagttcagg	gagtggctct	cggccctcaa	agctcctccg	180
gggactgctc	aggagtgatg	gtgccctgga	gtttgcccc	acttccctgg	ccaccctgga	240
aggtgcctgg	ctgctccagg	cctetaggct	gggctgatgg	gtttctccag	gacacaagta	300
tcattaaagc	caccctctcc	tcagettgtc	aggccgcaca	tgtgggacag	gctgtgctca	360
caacccctc	gctgccttg	ccctccatca	ggaggagcca	gtggaacctt	cggaaagctc	420
ccagcatctc	agcagccctc	aaaagtcgtc	ctggggcaag	ctctggttct	cctgactgga	480
ggcatctg	gcttggcctg	ctctctctcg	c			511

<210> 65

<211> 394

<212> DNA

<213> Homo sapien

<400> 65

taaaaaagt	taacaaaggt	ttattttagac	tttcttcatg	ccccagatc	caggatgtct	60
atgtaaaccg	ttatcttaca	aagaaagcac	aatatttgg	ataaactaag	tcagtgactt	120
gcttaactga	aatagcgtcc	atccaaaagt	gggtttaagg	taaaactacc	tgacgatatt	180
ggcggggatc	ctgcagtttg	gaetgcttgc	cgggtttgtc	cagggttccg	ggtctgttct	240
tggcactcat	ggggacaggc	atcctgctcg	tctgtggggc	cccgtggag	cccttacgtg	300
aagctgaagg	tatcgaccst	agggggctct	agggcagtgg	gaccttcata	cggaaactaac	360
aagggtcggg	gagaggcctc	ttgggctatg	tggg			394

<210> 66

<211> 359

<212> DNA

<213> Homo sapien

<400> 66

caagcgttcc	tttatggatg	taaattcaaa	cagtcatgct	gagccatccc	gggctgacag	60
tcacgttwaa	gacactaggt	cgggcgccac	agtgccaccc	aaggagaaga	agaatttgga	120
atttttccat	gaagatgtac	ggaaatctga	tgttgaaat	gaaaatggcc	cccaaagtga	180
attccaaaag	gttaccacag	gggctgtaag	acctagtgtg	cctcctaagt	gggaaagagg	240
aatggagaat	agtatttctg	atgcatcaag	aacatcagaa	tataaaactg	agatcataat	300
gaaggaaaa	tccatatcca	atatgagttt	actcagagac	agtagaaact	attcccagg	359

<210> 67

<211> 450

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(450)

<223> n = A,T,C or G

<400> 67

taggaataac	aaatgtttat	tcagaaatgg	ataagtaata	cataatcacc	cttcatctct	60
taatgcccc	tcctctcctt	ctgcacagga	gacacagatg	ggtaacatag	aggcatggga	120
agtggaggag	gacacaggac	tagcccacca	ccttctcttc	ccggtctccc	aagatgactg	180
cttatagagt	ggaggaggca	aacagggtccc	ctcaatgtac	cagatgggtca	cctatagcac	240
cagctccaga	tggccacgtg	gttgcagctg	gactcaatga	aactctgtga	caaccagaag	300
atacctgctt	tgggatgaga	gggaggataa	agccatgcag	ggaggatatt	taccatccct	360
accctaagca	cagtgcgaagc	agtgagcccc	cggctccag	tacctgaaaa	accaaggcct	420
actgnctttt	ggatgctctc	ttggggccacg				450

<210> 68

<211> 511

<212> DNA

<213> Homo sapien

<400> 68

aagcctcctg	ccctggaaat	ctggagcccc	ttggagctga	gctggacggg	gcaggggagg	60
gctgagaggc	aagaccgtct	ccctcctgct	gcagctgctt	ccccagcagc	cactgctggg	120
cacagcagaa	acgccagcag	agaaaatggg	agccgagagt	ccttagccct	ggagctgagg	180
ctgcctctgg	gctgaccgcg	tggctgtacg	tggccagaac	tggggttggc	atctggcatc	240
catttgaggc	cagggtggag	gaaagggagg	ccaacagagg	aaaacctatt	cctgctgtga	300
caacacagcc	cttgtccac	gcagcctaag	tgcagggagc	gtgatgaagt	caggcagcca	360
gtcggggagg	acgaggtaac	tcagcagcaa	tgtcaccttg	tagcctatgc	gctcaatggc	420
ccggaggggc	agcaaccccc	cgcacacgtc	agccaacagc	agtgcctctg	caggcaccaa	480
gagagcgatg	atggacttga	gcgccgtgtt	c			511

<210> 69

<211> 511

<212> DNA

<213> Homo sapien

<400> 69

gtttggcaga	agacatgttt	aataacattt	tcatatttaa	aaaatacagc	aacaattctc	60
tatctgtcca	ccatcttgcc	ttgcccttcc	tggggctgag	gcagacaaag	gaaaggtaat	120
gagggttaggg	cccccaggcg	ggetaagtgc	tattggcctg	ctcctgctca	aagagagcca	180
tagccagctg	ggcacggccc	cctagccctt	ccaggttgct	gaggcggcag	cggtaggtaga	240
gttcttcact	gagccgtggg	ctgcagtctc	gcaggagaaa	cttctgcacc	agccctggct	300
ctacggcccc	aaagaggtgg	agccctgaga	accggaggaa	aacatccatc	acctccagcc	360
cctccagggc	ttcctcctct	tcctggcctg	ccagttcacc	tgccagccgg	gctcggggccg	420
ccaggtagtc	agcgtttag	aagcagccct	ccgcagaagc	ctgccgggtca	aatctccccg	480
ctataggagc	cccccgggag	gggtcagcac	c			511

<210> 70

<211> 511

<212> DNA

<213> Homo sapien

<400> 70

caagttgaac	gtcaggcttg	gcagagggtg	agtgtagatg	aaaacaaagg	tgtgattatg	60
aagaggatgt	gagtcctttg	ggtgtaggag	agaaaggctg	ttgagcttct	atttcaagat	120
acttttacct	gtgcaaaaag	cacattttcc	acctccttct	catggcattt	gtgtaagggtg	180
agtatgattc	ctattccatc	tgcatttttag	agggtgaagaa	taacgtacaa	gggattcagt	240
gattagcaag	ggacccctca	ctaagtgttg	atggagtttag	gacagagctc	agctgtttga	300
atctcagagc	ccaggcagct	ggagctgggt	aggatcctgg	agctggcact	aatgtgaggt	360
gcattccctc	caaccaggc	tcagatccgg	aacctgaccg	tgctgacccc	cgaaggggag	420
gcagggtga	gctggcccgt	tgggctccct	gctcctttca	caccacactc	tcgctttgag	480
gtgctgggct	gggactactt	cacagagcag	c			511

<210> 71

<211> 511

<212> DNA

<213> Homo sapien

<400> 71

tggcctgggc	aggattggga	gagaggtagc	taccocggatg	cagtcctttg	ggatgaagac	60
tatagggat	gaccccatca	tttccccaga	ggtctcggcc	tcctttggtg	ttcagcagct	120
gcccttgag	gagatctggc	ctctctgtga	tttcatcact	gtgcacactc	ctctcctgcc	180
ctccacgaca	ggcttgctga	atgacaacac	ctttgcccag	tgcaagaagg	gggtgcgtgt	240
ggtgaactgt	gcccgtggag	ggatcgtgga	cgaaggcgcc	ctgctccggg	ccctgcagtc	300
tggccagtgt	gccggggctg	cactggacgt	gtttacggaa	gagccgccac	gggaccgggc	360
cttggtggac	catgagaatg	tcacagctg	tccccacctg	ggtgccagca	ccaaggaggc	420
tcagagccgc	tgtggggagg	aaattgctgt	tcagttcgtg	gacatggtga	aggggaaatc	480
tctcacgggg	gttgtgaatg	cccaggccct	t			511

<210> 72

<211> 2017

<212> DNA

<213> Homo sapien

<400> 72

agccagatgg	ctgagagctg	caagaagaag	tcaggatcat	gatggctcag	tttcccacag	60
cgatgaatgg	agggccaaat	atgtgggcta	ttacatctga	agaacgtact	aagcatgata	120
aacagtttga	taacctcaaa	ccttcaggag	gttacataac	agggtgatcaa	gcccgtaactt	180
ttttcttaca	gtcaggctctg	ccggccccgg	ttttagctga	aatatggggc	ttatcagatc	240
tgaacaagga	tgggaagatg	gaccagcaag	agttctctat	agctatgaaa	ctcatcaagt	300
taaagttgca	gggccaacag	ctgcctgtag	tcctccctcc	tatcatgaaa	caaccccccta	360
tgttctctcc	actaatctct	gctcgttttg	ggatgggaag	catgcccatt	ctgtccattc	420
atcagccatt	gcctccagtt	gcacctatag	caacaccctt	gtcttctgct	acttcaggga	480
ccagtattcc	tcccctaattg	atgcctgctc	ccctagtgcc	ttctgttagt	acatcctcat	540
taccaaattgg	aactgccagt	ctcattcagc	ctttatccat	tccttattct	tcttcaacat	600
tgectcatgc	atcatcttac	agcctgatga	tgggaggatt	tgggtggtgct	agtatccaga	660
agggccagtc	tctgattgat	ttaggatcta	gtagctcaac	ttcctcaact	gcttccctct	720
cagggaaactc	acctaagaca	gggacctcag	agtgggcagt	tcctcagcct	tcaagattaa	780
agtatcgga	aaaatttaat	agtctagaca	aaggcatgag	cggatacctc	tcagggttttc	840
aagctagaaa	tgcccttctt	cagtcaaadc	tctctcaaac	tcagctagct	actatttgga	900
ctctggctga	catcgatgg	gacggacagt	tgaagctga	agaatttatt	ctggcgatgc	960
acctcactga	catggccaaa	gctggacagc	cactaccact	gacgttgccct	cccagacttg	1020
tccctccatc	tttcagaggg	ggaaagcaag	ttgattctgt	taatggaact	ctgccttcat	1080
atcagaaaac	acaagaagaa	gagcctcaga	agaaactgcc	agttactttt	gaggacaaac	1140
ggaaagccaa	ctatgaacga	ggaaacatgg	agctggagaa	gcgacgccaa	gtgttgatgg	1200
agcagcagca	gagggaggct	gaacgcaaag	cccagaaaga	gaaggaagag	tgggagcgga	1260
aacagagaga	actgcaagag	caagaatgga	agaagcagct	ggagttggag	aaacgcttgg	1320

agaaacagag	agagctggag	agacagcggg	aggaagagag	gagaaaggag	atagaaagac	1380
gagaggcagc	aaaacaggag	cttgagagac	aacgccgttt	agaatgggaa	agactccgtc	1440
ggcaggagct	gctcagtcag	aagaccaggg	aacaagaaga	cattgtcagg	ctgagctcca	1500
gaaagaaaag	tctccacctg	gaactggaag	cagtgaatgg	aaaacatcag	cagatctcag	1560
gcagactaca	agatgtccaa	atcagaaaagc	aaacacaaaa	gactgagcta	gaagttttgg	1620
ataaacagtg	tgacctggaa	attatggaaa	tcaaacaact	tcaacaagag	cttaaggaat	1680
atcaaaataa	gcttatctat	ctggtccttg	agaagcagct	attaaacgaa	agaattaaaa	1740
acatgcagct	cagtaacaca	cctgattcag	ggatcagttt	acttcataaa	aagtcacatcag	1800
aaaaggaaga	attatgccaa	agacttaaaag	aacaattaga	tgctcttgaa	aaagaaaactg	1860
catctaagct	ctcagaaaatg	gattcattta	acaatcagct	gaaggaactc	agagaaaagct	1920
ataatacaca	gcagtttagcc	cttgaacaac	ttcataaaat	caaacgtgac	aaattgaagg	1980
aaatcgaaa	aaaaagatta	gagcaaaaaa	aaaaaaa			2017

<210> 73

<211> 414

<212> DNA

<213> Homo sapien

<400> 73

atggcagtga	cattcaccat	catgggaacc	accttccctt	ttcttcagga	ttctctgtag	60
tggaagagag	caccagtggt	tgggctgaaa	acatctgaaa	gtagggagaa	gaacctaaaa	120
taatcagtat	ctcagagggc	tctaagggtc	caagaagtct	cactggacat	ttaagtgcc	180
acaaaggcat	actttcggaa	tcgccaagtc	aaaactttct	aacttctgtc	tctctcagag	240
acaagtgaga	ctcaagagtc	tactgcttta	gtggcaacta	cagaaaactg	gtgttaccca	300
gaaaaacagg	agcaattaga	aatggttcca	atattttcaa	gctccgcaaa	caggatgtgc	360
tttcttttgc	ccattttaggg	tttcttctct	ttcctttctc	tttattaacc	acta	414

<210> 74

<211> 1567

<212> DNA

<213> Homo sapien

<400> 74

atatctagaa	gtctggagtg	agcaaacaag	agcaagaaac	aaaaagaagc	caaaagcaga	60
aggctccaat	atgaacaaga	taaatctatc	ttcaaagaca	tattagaagt	tgggaaaaata	120
attcatgtga	actagacaag	tgtgttaaga	gtgataagta	aaatgcacgt	ggagacaagt	180
gcatccccag	atctcaggga	cctccccctg	cctgtcacct	ggggagtgag	aggacaggat	240
agtgcagtgt	ctttgtctct	gaatttttag	ttatatgtgc	tgtaatgttg	ctctgaggaa	300
gcccctggaa	agtctatccc	aacatatcca	catcttatat	tccacaaatt	aagctgtagt	360
atgtacccta	agacgctgct	aattgactgc	cacttcgcaa	ctcaggggag	gctgcatttt	420
agtaatgggt	caaatgattc	actttttatg	atgcttccaa	agggtgccttg	gcttctcttc	480
ccaactgaca	aatgccaaag	ttgagaaaaa	tgatcataat	tttagcataa	acagagcagt	540
cggcgacacc	gattttataa	ataaactgag	caccttcttt	ttaaacaac	aaatgcgggt	600
ttattttctca	gatgatgttc	atccgtgaat	ggtccaggga	aggacctttc	accttgacta	660
tatggcatta	tgatcatcaca	agctctgagg	cttctccttt	ccatcctgag	tggacagcta	720
agacctcagt	tttcaatagc	atctagagca	gtgggactca	gctggggtga	tttcgcccc	780
catctccggg	ggaatgtctg	aagacaattt	tgttacctca	atgagggagt	ggagaggat	840
acagtgttac	taccaactag	tggataaagg	ccagggatgc	tgtcaacct	cctaccatgt	900
acaggacgtc	tccccattac	aactacccaa	tccgaagtgt	caactgtgtc	aggactaaga	960
aaccctgggt	ttgagtagaa	aagggcctgg	aaagagggga	gccaacaaat	ctgtctgctt	1020
cctcacatta	gtcattggca	aataagcatt	ctgtctcttt	ggctgctgcc	tcagcacaga	1080
gagccagaac	tctatcgggc	accaggataa	catctctcag	tgaacagagt	tgacaaggcc	1140
tatgggaaat	gcctgatggg	attatcttca	gcttggttag	cttctaagtt	tctttccctt	1200
cattctaccc	tgcaagccaa	gttctgtaag	agaaatgcct	gagttctagc	tcaggttttc	1260
ttactctgaa	tttagatctc	cagaaccttc	ctggccacaa	ttcaaattaa	ggcaacaaac	1320

atataccttc	catgaagcac	acacagactt	ttgaaagcaa	ggacaatgac	tgcttgaatt	1380
gagggccttga	ggaatgaagc	tttgaaggaa	aagaatactt	tgtttccagc	ccccctccca	1440
cactcttcat	gtgttaacca	ctgccttctt	ggaccttgga	gccacggtga	ctgtattaca	1500
tggtgttata	gaaaactgat	tttagagttc	tgatcgttca	agagaatgat	taaataataca	1560
tttccta						1567

<210> 75
 <211> 240
 <212> DNA
 <213> Homo sapien

<400> 75	
tcgagcggcc	gcccgggcag gtccttcaga cttggactgt gtcacactgc caggcttcca 60
gggtcccaac	ttgcagacgg cctgttgtgg gacagtctct gtaatcgga aagcaaccat 120
ggaagacctg	ggggaaaaca ccatggtttt atccacctg agatctttga acaacttcat 180
ctctcagcgt	gcggaggag gctctggact ggatatttct acctcggccg cgaccacgct 240

<210> 76
 <211> 330
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(330)
 <223> n = A,T,C or G

<400> 76	
tagcgyggtc	gcggccgagg yetgcttytc tgtccagccc agggcctgtg gggtcagggc 60
ggtgggtgca	gatggcatcc actccggtgg cttccccatc tttctctggc ctgagcaagg 120
tcagcctgca	gccagagtac agagggccaa cactggtgtt cttgaacaag ggccttagca 180
ggcctgaag	gcccctctct gtagtgttga acttctctga gccaggccac atgttctcct 240
cataccgcag	gytagygatg gtgaagttga ggggtgaaata gtattmangr agatggctgg 300
caracctgcc	cgggcggccg ctcsaaatcc 330

<210> 77
 <211> 361
 <212> DNA
 <213> Homo sapien

<400> 77	
agcgtgggtc	cgcccgaggt gtccttcagg gtctgcttat gcccttggtc aagaacacca 60
gtgtcagctc	tctgtactct ggttgacagac tgaccttgct caggcctgag aaggatgggg 120
cagccaccag	agtggatgct gtctgcaccc atcgctctga ccccaaaagc cctggactgg 180
acagagagcg	gctgtactgg aagctgagcc agctgaccca cgcatcact gagctggggc 240
cctacacct	ggacagggac agtctctatg tcaatggttt caccatcgag agctctgtac 300
ccaccaccag	caccggggtg gtcagcgagg agccattcaa cctgcccggg cggccgctcg 360
a	

<210> 78
 <211> 356
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(356)
 <223> n = A,T,C or G

<400> 78

ttggggnttt	mgagcgccg	cccgggcagg	taccggggtg	gtcagcgagg	agccattcac	60
actgaacttc	accatcaaca	acctgcggtg	tgaggagAAC	atgcagcacc	ctggctccag	120
gaagtccaac	accacggaga	gggtccttca	gggcctgtc	aggtccctgt	tcaagagcac	180
cagtgttggc	cctctgtact	ctggctgcag	actgactttg	ctcagacttg	agaaacatgg	240
ggcagccact	ggagtggacg	ccatctgcac	cctccgcctt	gatccactg	gtcctggact	300
ggacagagag	cggctatact	gggagctgag	ccagtccctc	ggcgngacn	ccnctt	356

<210> 79
 <211> 226
 <212> DNA
 <213> Homo sapien

<400> 79

agcgtggtcg	cggccgaggt	ccagtgcgag	catgctcttt	ctcctgcccc	ctggcacagt	60
gaggaagatc	tctgctgtca	gtgagaaggc	tgtcatccac	tgagatggca	gtcaaaagtg	120
catttaatac	acctaacgta	tcgaacatca	tagcttgGCC	caggttatct	catatgtgct	180
cagaacactt	acaatagcct	gcagacctgc	ccggcgggcc	gtcga		226

<210> 80
 <211> 444
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(444)
 <223> n = A,T,C or G

<400> 80

tgtggtgttg	aacttccttg	agncagggtg	acccatgtcc	tcccatact	gcaggttggt	60
gatggtgaag	ttgagggtga	atggtaccag	gagaggGCCA	gcagccataa	ttgtsgrgck	120
gsmgmssgag	gmwggwgtyy	cwgagggtcy	rarrtccact	gtggagggtc	caggagtgtc	180
ggtggtgggc	acagagstcy	gatgggtgaa	accattgaca	tagagactgt	tcctgtccag	240
ggtgtagggg	cccagctctt	yratgycatt	ggycagttkg	ctyagctccc	agtacagccr	300
ctctckgyyg	mgwccagsgc	ttttggggtc	aagatgatgg	atgcagatgg	catccactcc	360
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gccaacactg	gtgttctttg	aata				444

<210> 81
 <211> 310
 <212> DNA
 <213> Homo sapien

<400> 81

tcgagcggcc	gcccgggcag	gtcaggaagc	acattggtct	tagagccact	gcctcctgga	60
ttccacctgt	gctgcggaca	tctccaggga	gtgcagaagg	gaagcaggtc	aaactgctca	120
gatcagtcag	actggtgtt	ctcagttctc	acctgagcaa	ggtcagtctg	cagccagagt	180
acagagggcc	aacactgggt	ttcttgaaca	agggcttgag	cagaccctgc	agaaccctct	240
tccgtggtgt	tgaacttctt	ggaaaccagg	gtgttgcatg	tttttccctca	taatgcaagg	300
ttggtgatgg						310

<210> 82
 <211> 571
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(571)
 <223> n = A,T,C or G

<400> 82
 acggtttcaa tggacacttt tattgtttac ttaatggatc atcaattttg tctcactacc 60
 tacaaatgga atttcatctt gtttccatgc tgagtagtga aacagtgaca aagctaataca 120
 taataaccta catcaaaaga gaactaagct aacactgctc actttctttt taacaggcaa 180
 aatataaata tatgactctt anaatgcaca atggtttagt cactaaaaaa ttcaaattggg 240
 atcttgaaga atgtatgcaa atccaggggtg cagtgaagat gagctgagat gctgtgcaac 300
 tgtttaagggt ttcctggcac tgcactctctt ggccactagc tgaatcttga catggaaggt 360
 tttagctaata gccaaagtga gatgcagaaa atgctaagtt gacttagggg ctgtgcacag 420
 gaactaaaag gcaggaaagt actaaatatt gctgagagca tccaccccag gaaggacttt 480
 accttccagg agctccaaac tggcaccacc cccagtgtct acatggctga ctttatcctc 540
 cgtgttccat ttggcacagc aagtggcagt g 571

<210> 83
 <211> 551
 <212> DNA
 <213> Homo sapien

<400> 83
 aaggctgggt gggttttgat cctgctggag aacctccgct ttcattgtga ggaagaaggg 60
 aagggaaaag atgcttcttg gaacaaggtt aaagccgagc cagccaaaat agaagctttc 120
 cgagcttcac tttccaagct aggggatgtc tatgtcaatg atgcttttgg cactgtcac 180
 agagcccaca gctccatggt aggagtcaat ctgccacaga aggctgggtg gtttttgatg 240
 aagaaggagc tgaactactt tgcaaaggcc ttggagagcc cagagcgacc ctctctggcc 300
 atcctggggc gagctaaagt tgcagacaag atccagctca tcaataatat gctggacaaa 360
 gtcaatgaga tgattatttg tgggtgaatg gcttttacct tccttaaggt gctcaacaac 420
 atggagattg gcacttctct gtttgatgaa gagggagcca agattgtcaa agacctaatag 480
 tccaaagctg agaagaatgg tgtgaagatt accttgctct ttgactttgt cactgctgac 540
 aagtttgatg a 551

<210> 84
 <211> 571
 <212> DNA
 <213> Homo sapien

<400> 84
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 cttctagctg ggacaaaagt tctttgtttt cccctgtag agtatcacag accttctgct 180
 gaagctggac ctctgtctgg gccttggaact cccaaatctg cttgtcatgt tcaagcctgg 240
 aaatgttaat ctttaattct tccatatgga tggacatctg tctaagttga tcctttagaa 300
 cactgcaatt atcttctttg agtctaattt ctcttctttt gctttgaatc gcatcactaa 360
 acttctctc ccatttctta gcttcatcta tcacctgtc acgatcatcc tggaggggaag 420
 acatgctctt agtaaaggct gcaagctggg tcacagtact gtccaagttt tcctgaagtt 480
 gctgaacttc cttgtctttc ttgttcaaag taacctgaat ctctccaatt gtctcttcca 540

agtggacttt ttctctgcgc aaagcatcca g

571

<210> 85
 <211> 561
 <212> DNA
 <213> Homo sapien

<400> 85
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 aatcaaagga ttcagcatgt ggtggaagct gtgaggcaag agaaacaaga actgtatggc 120
 aagttaagaa gcacagagggc aaacaagaag gagacagaaa agcagttgca ggaagctgag 180
 caagaaatgg aggaatgaa agaaaagatg agaaagtttg ctaaactctaa acagcagaaa 240
 atcctagagc tggagaaga gaatgaccgg cttagggcag aggtgcaccc tgcaggagat 300
 acagctaaag agtgtatgga aacacttctt tcttccaatg ccagcatgaa ggaagaactt 360
 gaaaggggtca aaatggagta tgaaccctt tctaagaagt ttcagtcttt aatgtctgag 420
 aaagactctc taagtgaaga ggttcaagat ttaagcatc agatagaagg taatgtatct 480
 aaacaagcta acctagaggg caccgagaaa catgataacc aaacgaatgt cactgaagag 540
 ggaacacagt ctataccagg t 561

<210> 86
 <211> 795
 <212> DNA
 <213> Homo sapien

<400> 86
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 aattctcacc gttacaacaa ccccatgagg tattttattcc cattctatag atagggaaac 120
 cacagctcaa gtaagttagg aaactgagcc aagtatacac agaatacgaa gtggcaaac 180
 tagaaggaaa gactgacact gctatctgct ggccctcaggt gtcctggctc ttttcacacg 240
 ggttcaatgt ctccagcgct gctgctgctg ctgcattacc atgccctcat tgtttttctt 300
 cctctgggtg tcaactgcat ccttcaaaga atctaactca ttccagagac cacttatttc 360
 tttctctctt tctgaaatta cttttaataa ttcttcatga gggggaaaag aagatgcctg 420
 ttggtagttt tggtgtttaa gctgctcaat ttgggactta aacaatttgt tttcatcttg 480
 tacatcctgt aacagctgtg ttttgctaga aagatcactc tccctctctt ttagcatggc 540
 ttctaacctc ttcaattcat tttccttttc tttcaacaca atctcaagtt cttcaaactg 600
 tgatgcagaa gaggcctctt tcaagttatg ttgtgctact tcctgaacat gtgcttttaa 660
 agattcattt tcttcttgaa gatcctgtaa ccacttccct gtattggcta ggtctttctc 720
 tttctcttcc aaaacagcct tcatggtatt catctgttcc tcttttctt ttaataagtt 780
 caggagcttc agaac 795

<210> 87
 <211> 594
 <212> DNA
 <213> Homo sapien

<400> 87
 caagctttttt tttttttttt aaaaagtgtt agcattaatg ttttattgtc acgcagatgg 60
 caactgggtt tatgtcttca ttttttatat ttttgtaaat taaaaaaatt acaagtttta 120
 aatagccaat ggctggttat attttcagaa aacatgatta gactaattca ttaatggtgg 180
 cttcaagctt ttccttattg gctccagaaa attcaccac cttttgtccc ttcttaaaaa 240
 actggaatgt tggcatgcat ttgacttcac actctgaagc aacatcctga cagtcattcca 300
 catctacttc aaggaatatt acgttgggaat acttttcaga gaggggaatga aagaaaggct 360
 tgatcatttt gcaaggccca caccacgtgg ctgagaagtc aactactaca agtttatcac 420
 ctgcagcgct caaggcttcc tgaaaagcag tcttgctctc gatctgcttc accatcttgg 480
 ctgctggagt ctgacgagcg gctgtaagga ccgatggaaa tggatccaaa gcaccaaaaca 540

gagcttcaag actcgctgct tggcttgaat tcggatccga tatcgccatg gcct 594

<210> 88
<211> 557
<212> DNA
<213> Homo sapien

<400> 88
aagtgttagc attaatgttt tattgtcacg cagatggcaa ctgggtttat gtcttcatat 60
tttatatttt tgtaaattaa aaaaattmca agttttaaat agccaatggc tggttatatt 120
ttcagaaaac atgattagac taattcatta atgggtggctt caagcttttc cttattggct 180
ccagaaaatt caccacacct ttgtcccttc ttaaaaaact ggaatgttgg catgcatttg 240
acttcacact ctgaagcaac atcctgacag tcatccacat ctacttcaag gaatatcacg 300
ttggaatact tttcagagag ggaatgaaag aaaggcttga tcattttgca aggcccacac 360
cacgtggctg agaagtcaac tactacaagt ttatcacctg cagcgtccaa ggcttcctga 420
aaagcagtct tgctctcgat ctgcttcacc atcttggctg ctggagtctg acgagcggct 480
gtaaggaccg atggaaatgg atccaaagca ccaaacagag cttcaagact cgctgcttgg 540
catgaattcg gatccga 557

<210> 89
<211> 561
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(561)
<223> n = A,T,C or G

<400> 89
tacaaacttt attgaaacgc acacgcgcac acacacaaac acccctgtgg atagggaaaa 60
gcacctggcc acaggggtcca ctgaaacggg gaggggatgg cagcttgtaa tgtggctttt 120
gccacaaccc ccttctgaca gggaaggcct tagattgagg cccacacctc catgggtgatg 180
gggagctcag aatgggggtcc agggagaatt tggttagggg gaggtgctag ggaggcatga 240
gcagagggca cctcccgagt ggggtcccgga gggctgcaga gtcttcagta ctgtccctca 300
cagcagctgt ctcaaggctg ggtccctcaa aggggcgtcc cagcgcgggg cctccctgcg 360
caaacacttg gtacccttg ctgcgcagcg gaagccagca ggacagcagt ggcgcggatc 420
agcacaacag acgccttggc ggtagggaca gcaggcccag cctgtcgggt tgtctcggca 480
gcaggctcgg ttatcatggc agaagtgtcc tcccacact tcacgtcctt cacaccacag 540
tganggtac nggccaggaa g 561

<210> 90
<211> 561
<212> DNA
<213> Homo sapien

<400> 90
cccgtgggtg ccatccacgg agttgttacc tgatcttttg aagcaggatc gccgctctgc 60
actgcagtgg aagccccgtg ggcagcagt atggccatcc ccgcatgcc cggcctctgg 120
gaaggggcag caactggaag tccctgagac ggtaaagatg caggagtggc cggcagagca 180
gtgggcatca acctggcagg ggccacccag atgcctgctc agtgttgttg gccatttgtc 240
cagaagggga cggcagcagc tgtagctggc tccctccggg tccaggcagc aggccacagg 300
gcagaactga ccatctgggc accgcgttcc agccaccagc cctgctgtta aggccacca 360
gtcaccagg gtccacatgg tetgcctgcg tccgactccg cggtccttgg gccctgatgg 420
ttctacctgc tgtgagctgc ccagtgggaa gtatggctgc tgccaatgcc caacgccacc 480

tgctgctccg atcacctgca ctgctgcccc aagacactgt gtgtgacctg atccagagta 540
agtgcctctc caaggagaac g 561

<210> 91
<211> 541
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(541)
<223> n = A,T,C or G

<400> 91
gaatcacctt tctggttttag ctagtacttt gtacagaaca atgagggtttc ccacagcgga 60
gtctcccttg gctctgtttg gctctcggtt aggcaggcct acaccttttc ctctcctcta 120
tgagaggggg aatatgcatt aagggtgaaa gtcaccttcc aaaagtgaga aagggtattcg 180
attgctgctt caggactgtg gaattatttg gaatgtttta caaatgggtg ctacaaaaca 240
acaaaaaagg taattacaaa atgtgtacat cacaacatgc tttttaaaga cattatgcât 300
tgtgtcaca ttccttataa tggtgtttcc aaagggtgctc agcctctagc ccagctggat 360
tctccgggaa gaggcagaga cagtttggtg aaaaagacac agggaaggag ggggtggtga 420
aaggagaaag cagccttcca gttaaagatc agccctcagt taaaggtcag ctccccgcan 480
gctggcctca ngcggagtct gggtcagagg gaggagcagc agcaggggtg gactggggcg 540
t 541

<210> 92
<211> 551
<212> DNA
<213> Homo sapien

<400> 92
aaccggagcg cgagcagtag ctgggtgggc accatggctg ggatcaccac catcgaggcg 60
gtgaagcgca agatccaggt tctgcagcag caggcagatg atgcagagga gcgagctgag 120
cgctccagc gagaagttga gggagaaagg cgggcccggg aacaggctga ggctgaggtg 180
gcctccttga accgtaggat ccagctgggt gaagaagagc tggaccgtgc tcaggagcgc 240
ctggccactg ccctgcaaaa gctggaagaa gctgaaaaag ctgctgatga gactgagaga 300
ggtatgaagg ttattgaaaa cggggcctta aaagatgaag aaaagatgga actccaggaa 360
atccaactca aagaagctaa gcacattgca gaagaggcag ataggaagta tgaagaggtg 420
gctcgtaagt tggatgatcat tgaaggagac ttggaacgca cagaggaacg agctgagctg 480
gcagagtccc gttgccgaga gatggatgag cagattagac tgatggacca gaacctgaag 540
tgtctgagtg c 551

<210> 93
<211> 531
<212> DNA
<213> Homo sapien

<400> 93
gagaacttgg cctttatttg gggcccagga gggcacaaaag gtcaggaggc ccaagggagg 60
gatctggttt tctggatagc caggtcatag catgggtatc agtaggaatc cgctgtagct 120
gcacaggcct cacttgctgc agttccgggg agaacacctg cactgcatgg cgttgatgac 180
ctcgtggtac acgacagagc cattggtgca gtgcaagggc acgcgcatgg gctccgtcct 240
cgagggcagg cagcaggagc attgctcctg cacatcctcg atgtcaatgg agtacacagc 300
tttgctggca cactttccct ggcagtaatg aatgtccact tcctcttggg acttacaatc 360
tcccactttg atgtactgca ccttggtgtg gatgtctttg caatcaggct cctcacatgt 420

gtcacagcag gtgcctggaa ttttcacgat tttgcctcct tcagccagac acttgtgttc 480
atcaaatggg gggcagcccc tgaccctctt ctcccagatg tactctcttc t 531

<210> 94
<211> 531
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(531)
<223> n = A,T,C or G

<400> 94
gcctggacct tgccggatca gtgccacaca gtgacttgct tggcaaatgg ccagaccttg 60
ctgcagagtc atcgtgtcaa ttgtgaccat ggaccccggc cttcatgtgc caacagccag 120
tctcctgttc ggggtggagga gacgtgtggc tgccgctgga cctgcccttg tgtgtgcacg 180
ggcagttcca ctccggcacat cgtcaccttc gatgggcaga atttcaagct tactggttagc 240
tgctcctatg tcatctttca aaacaaggag caggacctgg aagtgtctct ccacaatggg 300
gcctgcagcc ccggggcaaaa acaagcctgc atgaagtcca ttgagattaa gcatgctggc 360
gtctctgtcg agctgcacag taacatggag atggcagtg atgggagact ggtccttgcc 420
ccgtacgttg gtgaaaacat ggaagtcagc atctacggcg ctatcatgta tgaagtcagg 480
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<210> 95
<211> 605
<212> DNA
<213> Homo sapien

<400> 95
agatcaacct ctgctggtca ggaggaatgc cttccttgct ttggatcttt gctttgacgt 60
tctcgatagt rwcaactkkr ytsramskma agkgyratgr wmttksywgg rasyktmwww 120
rsgraraytt agacaycccm cctcwagagc gsagkaccar gtgcagaggt ggactctttc 180
tgatgttgt agtcagacag ggtgcgtcca tcttccagct gtttcccagc aaagatcaac 240
ctctgctgat caggagggat gecttcctta tcttggatct ttgccttgac attctcgatg 300
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tgcattccac ctctgagacg gagcaccagg tgcagggtrg actctttctg gatgtttag 420
tcagacaggg tgcgyccatc ttccagctgc tttccsagca aagatcaacc tctgctggtc 480
aggaggratg ccttccttgc cytggatctt tgcyttgacr ttctcratgg tgtcactcgg 540
ctccacttcg agagtgatgg tcttaccagt cagggtcttc acgaagatct gcatccacc 600
tctaa 605

<210> 96
<211> 531
<212> DNA
<213> Homo sapien

<400> 96
aagtcacaaa cagacaaaaga ttattaccag ctgcaagcta tattagaagc tgaacgaaga 60
gacagaggtc atgattctga gatgattgga gaccttcaag ctcgattac atctttacaa 120
gaggaggtga agcatctcaa acataatctc gaaaaagtgg aaggagaaag aaaagaggct 180
caagacatgc ttaatcactc agaaaaggaa aagaataatt tagagataga tttaaactac 240
aaacttaaat cattacaaca acggttagaa caagaggtaa atgaacacaa agtaacacaa 300
gctcgtttta ctgacaaaaca tcaatctatt gaagaggcaa agtctgtggc aatgtgtgag 360
atggaaaaaa agctgaaaga agaaagagaa gtcgagagaa aggtgaaaa tcgggtgtgtt 420

cagattgaga aacagtgttc catgctagac gttgatctga agcaatctca gcagaaacta 480
 gaacatttga ctggaaataa agaaaggatg gaggatgaag ttaagaatct a 531

<210> 97
 <211> 1017
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(1017)
 <223> n = A,T,C or G

<400> 97
 cgctccacc atgtccatca gggtagacca gaagtcctac aaggtgtcca cctctggccc 60
 cggggccttc agcagccgct cctacacgag tgggcccgtt tcccgcatca gctcctcgag 120
 cttctcccga gtgggcagca gcaactttcg cggtagcctg ggcgggcggt atggtggggc 180
 cagcggcatg ggagggcatca ccgcagttac ggtcaaccag agcctgctga gcccccttgt 240
 cctggagggtg gaccccaaca tccaggccgt gcgcacccag gagaaggagc agatcaagac 300
 cctcaacaac aagtttgctt ccttcataga caaggtacgg ttcttgaggc agcagaacaa 360
 gatgctggag accaagtgga gcctcctgca gcagcagaag acggctcgaa gcaacatgga 420
 caacatgttc gagagctaca tcaacarcct taggcggcag ctggagactc tgggccagga 480
 gaagctgaag ctggaggcgg agcttggcaa catgcagggg ctggtggagg acttcaagaa 540
 caagtatgag gatgagatca ataagcgtac agagatggag aacgaatttg tcctcatcaa 600
 gaaggatgtg gatgaagctt acatgaacaa ggtagagctg gagtctcgcc tggaggggct 660
 gaccgacgag atcaacttcc tcaggcagct gtatgaagag gagatccggg agctgcagtc 720
 ccagatctcg gacacatctg tgggtgctgtc catggacaac agccgctccc tggacatgga 780
 cagcatcatt gctgagggtca aggcacagta cgaggatatt gccaacgcga gccgggctga 840
 ggctgagagc atgtaccagg tcaagtatga ggagctgcag agcctggctg ggaagcagcg 900
 ggatgacctg cggcgacaaa agactgagat ctctgagatg aaccgggaac atcagcccgg 960
 ctncaggctg agattgaggg cctcaaaggc caganggctt ncctggangn ccgccat 1017

<210> 98
 <211> 561
 <212> DNA
 <213> Homo sapien

<400> 98
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 tgggtctgga aacccaaacc ctcaaggatg gcctggcgca tgggggaacc agcctgctgg 120
 ggcagggggc tacccagggg cttcctatcc tggggcctac cccgggcagg cccccccagg 180
 ggcttatcct ggacaggcac ctccaggcgc ctaccctgga gcacctggag cttatcccgg 240
 agcacctgca cctggagtct acccagggcc acccagcggc cctggggcct acccatcttc 300
 tggacagcca agtgccaccg gagcctaccc tgccactggc ccctatggcg cccctgctgg 360
 gccactgatt gtgccttata acctgccttt gcctggggga gtggtgcctc gcatgctgat 420
 aacaattctg ggcacggtga agcccaatgc aaacagaatt gcttttagatt tccaaagagg 480
 gaatgatgtt gccttccact ttaaccacag cttcaatgag aacaacagga gagtatttgg 540
 ttgcaatata aagctggata a 561

<210> 99
 <211> 636
 <212> DNA
 <213> Homo sapien

<400> 99

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ggaaacttag	acaccccccc	tcragcgmag	kaccargtgc	aragggtggac	tctttctgga	120
tggtgtagtc	agacagggttr	cgwccatctt	ccagctgttt	yccrgcaaag	atcaacctct	180
gctgatcagg	aggratgcct	tccttatctt	ggatctttgc	cttgacattc	tcgatgggtgt	240
cactgggctc	cacctcgagg	gtgatgggtct	taccagtcag	ggctcttcacg	aagatytgca	300
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ggratgcctt	ccttgctcytg	gatctttgcy	ttgaerttct	caatgggtgc	actcggctcc	480
acttcgagag	tgatggctct	accagtcagg	gtcttcacga	agatctgcat	cccacctcta	540
agacggagca	ccaggtgcag	ggtggactct	ttctggatgg	ttgtagtcag	acagggtgcg	600
tccatcttcc	agctgtttcc	cagcaaagat	caacct			636

<210> 100

<211> 697

<212> DNA

<213> Homo sapien

<400> 100

aggttgatct	ttgctgggaa	acagctggaa	gatggacgca	ccctgtctga	ctacaaccat	60
ccagaaaagag	tccaccctgc	acctgggtgct	ccgtcttaga	ggtgggatgc	agatcttcgt	120
gaagaccctg	actggtaaga	ccatcactct	cgaagtggag	ccgagtgaca	ccattgagaa	180
ygtcaargca	aagatccarg	acaaggaagg	catycctcct	gaccagcaga	ggttgatctt	240
tgctsggaaa	gcagctggaa	gatgggagca	ccctgtctga	ctacaacatc	cagaaagagt	300
cyaccctgca	cctgggtgctc	cgtctcagag	gtgggatgca	ratcttcgtg	aagaccctga	360
ctggtaagac	catcacctc	gaggtggagc	ccagtgcac	catcgagaat	gtcaaggcaa	420
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ytggmtctbc	gtctyagagg	kgggrtgcaa	atctwmgtkw	agacactcac	tkkyaagryy	600
atcamcmwtg	akktcgakys	castkwact	wtrakaamg	tyrwwgcawa	gatccmagac	660
aaggaaggca	ttctctctga	ccagcagagg	ttgatct			697

<210> 101

<211> 451

<212> DNA

<213> Homo sapien

<400> 101

atggagtcct	actctgtcga	ccaggctgga	gcgctgtggt	gcgatatcgg	ctcactgcag	60
tctccacttc	ctgggttcaa	gcgatcctcc	tgccctcagcc	tcccagtag	ctgggactac	120
aggcaggcgt	caccataatt	tttgtatttt	tagtagagac	atggtttcgc	catgttggct	180
gggctggtct	cgaactcctg	acctcaagtg	atctgtcctg	gcctcccaaa	gtgttgggat	240
tacaggcgaa	agccaacgct	cccggccagg	gaacaacttt	agaatgaagg	aaatatgcaa	300
aagaacatca	catcaaggat	caattaatta	ccatctatta	attactatat	gtgggttaatt	360
atgactatct	cccaagcatt	ctacgttgac	tgcttgagaa	gatgtttgtc	ctgcatgggtg	420
gagagtggag	aagggccagg	attcttaggt	t			451

<210> 102

<211> 571

<212> DNA

<213> Homo sapien

<400> 102

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cagctcggtt	aggaggagt	ggacagggt	caggaacgac	tggccacggc	cctgcagaag	120
ctggaggagg	cagaaaaagc	tgcatgatg	agtgaagag	gaatgaagg	gatagaaaac	180

cgggccatga	aggatgagga	gaagatggag	attcaggaga	tgcagctcaa	agaggccaag	240
cacattgctg	aagaggctga	ccgcaaatac	gaggaggtag	ctcgtaagct	ggatcatcctg	300
gaggggtgag	tggagagggc	agaggagcgt	gcggagggtg	ctgaactaaa	atgtgggtgac	360
ctggaagaag	aactcaagaa	tggtactaac	aatctgaaat	ctctggaggc	tgcatctgaa	420
aagtattctg	aaaaggagga	caaatatgaa	gaagaaatta	aacttctgtc	tgacaaactg	480
aaagaggctg	agacccgtgc	tgaatttgca	gagagaacgg	ttgcaaaact	ggaaaagaca	540
attgatgacc	tggaaagagaa	acttgcccag	c			571

<210> 103

<211> 451

<212> DNA

<213> Homo sapien

<400> 103

gtgcacaggt	cccatattatt	gtagaaaata	ataataatta	cagtgatgaa	tagctcttct	60
taaattacaa	aacagaaaacc	acaaagaagg	aagaggaaaa	accccaggac	ttccaagggg	120
gaagctgtcc	cctcctccct	gccaccctcc	caggctcatt	agtgtccttg	gaagggggcag	180
aggactcaga	ggggatcagt	ctccaggggc	cctgggctga	agcgggtgag	gcagagagtc	240
ctgaggccac	agagctgggc	aaactgagcc	gcctctctgg	ccccctcccc	caccactgcc	300
caaacctgtt	tacagcacct	tcgcccctcc	cctctaaacc	cgtccatcca	ctctgcactt	360
cccaggcagg	tgggtgggccc	aggcctcagc	catactcctg	ggcgcggtt	tcggtgagca	420
aggcacagtc	ccagaggtga	tatcaaggcc	t			451

<210> 104

<211> 441

<212> DNA

<213> Homo sapien

<400> 104

gcaaggaact	ggtctgctca	cacttgctgg	cttgccgcatc	aggactggct	ttatctcctg	60
actcacgggtg	caaagggtgca	ctctgcgaac	gttaagtccg	tccccagcgc	ttggaatcct	120
acggccccca	cagccggatc	ccctcagcct	tccaggctcct	caactcccgt	ggacgctgaa	180
caatggcctc	catggggcta	caggtaatgg	gcacgcgcgt	ggccgtcctg	ggctggctgg	240
ccgtcatgct	gtgctgcgcg	ctgcccattg	ggcgcgtgac	ggccttcac	ggcagcaaca	300
ttgtcacctc	gcagaccatc	tgggagggcc	tatggatgaa	ctgcgtggtg	cagagcaccg	360
gccagatgca	gtgcaagggtg	tacgaactcg	tgctggcact	gccgcaggac	ctgcaggcgg	420
cccgcgcctt	cgtcatcatc	a				441

<210> 105

<211> 509

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(509)

<223> n = A,T,C or G

<400> 105

tgcaaaagg	acacaggggt	tcaaaaataa	aaatttctct	tccccctccc	caaacctgta	60
ccccagctcc	ccgaccacaa	cccccttcc	cccccgggga	aagcaagaag	gagcaggtgt	120
ggcatctgca	gctgggaaga	gagaggccgg	ggagggtgcc	agctcgggtg	tggtctcttt	180
ccaaatataa	atacntgtgt	cagaactgga	aaatcctcca	gcaccaccca	cccaagcact	240
ctccgttttc	tgccggtgtt	tggagagggg	cggggggcag	gggcgccagg	caccggctgg	300
ctgcggtcta	ctgcatccgc	tgggtgtgca	ccccgcgagc	ctcctgctgc	tcattgtaga	360

agagatgaca	ctcggggtcc	ccccggatgg	tgggggctcc	ctggatcagc	ttcccgggtg	420
tggggttcac	acaccagcac	tccccacgct	gcccgttcag	agacatcttg	cactgtttga	480
ggttgtagac	gccatgcttg	tcacagttg				509

<210> 106

<211> 571

<212> DNA

<213> Homo sapien

<400> 106

gggttgagg	gactggttct	ttatttcaaa	aagacacttg	tcaatattca	gtatcaaaac	60
agttgcacta	ttgatttctc	tttctcccaa	tcggccccaa	agagaccaca	taaaaggaga	120
gtacatttta	agccaataag	ctgcaggatg	tacacctaac	agacctccta	gaaaccttac	180
cagaaaatgg	ggactgggta	gggaaggaaa	cttaaaagat	caacaaactg	ccagcccacg	240
gactgcagag	gctgtcacag	ccagatgggg	tggccagggt	gccacaaacc	caaagcaaag	300
tttcaaaata	atataaaatt	taaaaagttt	tgtacataag	ctattcaaga	tttctccagc	360
actgactgat	acaaagcaca	attgagatgg	cacttctaga	gacagcagct	tcaaaccacg	420
aaaaggggtga	tgagatgagt	ttcacatggc	taaatcagtg	gcaaaaacac	agtcttcttt	480
ctttctttct	ttcaaggagg	caggaaagca	attaagtggg	cacctcaaca	taagggggac	540
atgatccatt	ctgtaagcag	ttgtgaaggg	g			571

<210> 107

<211> 555

<212> DNA

<213> Homo sapien

<400> 107

caggaaccgg	agcgcgagca	gtagctgggt	gggcaccatg	gctgggatca	ccaccatcga	60
ggcgggtgaag	cgcaagatcc	aggttctgca	gcagcaggca	gatgatgcag	aggagcgagc	120
tgagcgctc	cagcgagaag	ttgagggaga	aaggcgggcc	cggaacagg	ctgaggctga	180
ggtggcctcc	ttgaaccgta	ggatccagct	ggttgaagaa	gagctggacc	gtgctcagga	240
gcgcctggcc	actgccctgc	aaaagctgga	agaagctgaa	aaagctgctg	atgagagtga	300
gagaggtatg	aaggttattg	aaaaccgggc	cttaaaagat	gaagaaaaga	tggaaactcca	360
ggaaatccaa	ctcaaagaag	ctaagcacat	tgcagaagag	gcagatagga	agtatgaaga	420
ggtggctcgt	aagttggtga	tcattgaagg	agacttggaa	cgcacagagg	aacgagctga	480
gctggcagag	tcccgttgcc	gagagatgga	tgagcagatt	agactgatgg	accagaacct	540
gaagtgtctg	agtg					555

<210> 108

<211> 541

<212> DNA

<213> Homo sapien

<400> 108

atctacgtca	tcaatcaggc	tggagacacc	atgttcaatc	gagctaagct	gctcaatatt	60
ggctttcaag	aggccttgaa	ggactatgat	tacaactgct	ttgtgttcag	tgatgtggac	120
ctcattccga	tggacgaccg	taatgcctac	aggtgttttt	cgcagccacg	gcacatttct	180
gttgcaatgg	acaagtccgg	gtttagcctg	ccatagtgtc	agtatttttg	aggtgtctct	240
gctctcagta	aacaacagtt	tcttgccatc	aatggattcc	ctaataatta	ttggggtttg	300
ggaggagaag	atgacgacat	ttttaacaga	ttagttcata	aaggcatgtc	tatatcacgt	360
ccaaatgctg	tagtagggag	gtgtcgaatg	atccggcatt	caagagacaa	gaaaaatgag	420
cccaatcctc	agaggtttga	ccggatcgca	catacaaagg	aaacgatgcg	cttcgatggg	480
ttgaactcac	ttacctacaa	ggtgttggtg	gtcagagata	cccgttatat	acccaaatca	540
c						541

<210> 109
 <211> 411
 <212> DNA
 <213> Homo sapien

<400> 109

ctagacctct	aattaaaagg	cacaatcatg	ctggagaatg	aacagtctga	ccccgagggc	60
cacagcgaat	tttagggaag	gaggcaaaga	ggtgagaagg	gaaaggaaaag	aaggaaggaa	120
ggagaacaat	aagaactgga	gacgttggtt	gggtcaggga	gtgtggtgga	ggctcggaga	180
gatggtaaac	aaacctgact	gctatgagtt	ttcaacccca	tagtctaggg	ccatgagggc	240
gtcagttctt	ggtggctgag	ggtccttcca	cccagcccac	ctgggggagt	ggagtgggga	300
gttctgccag	gtaagcagat	gttgctctcc	aagttcctga	cccagatgtc	tggcaggata	360
acgctgacct	gttccctcaa	caagggacct	gaaagtaatt	ttgctcttta	c	411

<210> 110
 <211> 451
 <212> DNA
 <213> Homo sapien

<400> 110

ccgaattcaa	gcgtcaacga	tccytccctt	accatcaa	caattggcca	ccaatggtac	60
tgaacctacg	agtacaccga	ctacgggcgg	actaatcttc	aactcctaca	tacttcccc	120
attattccta	gaaccaggcg	acctgcgact	ccttgacgtt	gacaatcgag	tagtactccc	180
gattgaagcc	cccattcgta	taataattac	atcacaagac	gtcttgcaact	catgagctgt	240
ccccacatta	ggcttaaaaa	cagatgcaat	tcccgacgt	ctaagccaaa	ccactttcac	300
cgctacacga	ccgggggtat	actacggtea	atgctctgaa	atctgtggag	caaaccacag	360
tttcatgccc	atcgctctag	aattaattcc	cctaaaaatc	tttgaaatag	ggcccgtatt	420
taccctatag	cacccctctt	acccctcteta	g			451

<210> 111
 <211> 541
 <212> DNA
 <213> Homo sapien

<400> 111

gctcttcaca	cttttattgt	taattctctt	cacatggcag	atacagagct	gtcgtcttga	60
agaccaccac	tgaccaggaa	atgccacttt	tacaaaatca	tccccctttt	tcatgattgg	120
aacagttttc	ctgaccgtct	gggagcgttg	aagggtgacc	agcacatttg	cacatgcaaa	180
aaaggtgtga	ccccaaggcc	tcaaccacac	ttcccagagc	tcaccatggg	ctgcagggtga	240
cttgccagggt	ttgggggttcg	tgagctttcc	ttgctgctgc	ggtggggagg	ccctcaagaa	300
ctgagaggcc	gggggtatgct	tcatgagtgt	taacatttac	gggacaaaag	cgcatcatta	360
ggataaggaa	cagccacagc	acttcatgct	tgtgagggtt	agctgtagga	gcgggtgaaa	420
ggattccagt	ttatgaaaat	ttaaagcaaa	caacggtttt	tagctgggtg	ggaaacagga	480
aaactgtgat	gtcggccaat	gaccaccatt	tttctgcccc	tgtgaaggtc	cccatgaaac	540
c						541

<210> 112
 <211> 521
 <212> DNA
 <213> Homo sapien

<400> 112

caagcgcttg	gcgtttggac	ccagttcagt	gaggttcttg	ggttttgtgc	ctttggggat	60
tttggtttga	cccaggggtc	agccttagga	aggtcttcag	gaggaggccg	agttcccctt	120
cagtaccacc	cctctctccc	cactttccct	ctcccggcaa	catctctggg	aatcaacagc	180

atattgacac	ggtggagccg	agcctgaaca	tgcccctcgg	ccccagcaca	tgaaaaaccc	240
ccttccttgc	ctaaggtgtc	tgagtttctg	gctcttgagg	catttccaga	cttgaaattc	300
tcatcagtc	attgctcttg	agtctttgca	gagaacctca	gatcagggtc	acctgggaga	360
aagactttgt	ccccacttac	agatctatct	cctcccttgg	gaagggcagg	gaatggggac	420
ggtgtatgga	ggggaaggga	tctcctgcgc	ccttcattgc	cacacttggt	gggaccatga	480
acatctttag	tgtctgagct	tctcaaatta	ctgcaatagg	a		521

<210> 113

<211> 568

<212> DNA

<213> Homo sapien

<400> 113

agcgtcaa	at	cagaatggaa	aagactcaaa	accatcatca	acaccaagat	caaaaggaca	60
agratccttc	aagaaacagg	aaaaaactcc	taaaacacca	aaaggaccta	gttctgtaga		120
agacattaaa	gcaaaaatgc	aagcaagtat	agaaaaaggt	ggttctcttc	ccaaagtgga		180
agccaaattc	atcaattatg	tgaagaattg	cttcctcgatg	actgaccaag	aggctattca		240
agatctcttg	cagtggagga	agtctcttta	agaaaatagt	ttaaacaatt	tgttaaaaaa		300
ttttccgtct	tatttcat	ctgtaacagt	tgatatctgg	ctgtcctttt	tataatgcag		360
agtgagaact	ttccctaccg	tgtttgataa	atgttgcca	ggttctattg	ccaagaatgt		420
gttgccaaa	atgcctgttt	agtttttaaa	gatggaactc	caccctttgc	ttggttttaa		480
gtatgtatgg	aatgttatga	taggacatag	tagtagcggg	ggtcagacat	ggaaatggtg		540
ggsmgacaaa	aataacatg	tgaaataa					568

<210> 114

<211> 483

<212> DNA

<213> Homo sapien

<400> 114

tccgaattcc	aagcgaatta	tggaacaaacg	attcctttta	gaggattact	tttttcaatt	60
tccgttttag	taatctaggc	tttgccgtgta	aagaatacaa	cgatggattt	taaatactgt	120
ttgtggaatg	tgtttaaagg	attgattcta	gaacctttgt	atatttgata	gtattttctaa	180
ctttcatattc	tttactgttt	gcagttaatg	ttcatgttct	gctatgcaat	cgtttatatg	240
cacgtttctt	taattttttt	agatttttct	ggatgtatag	tttaaacac	aaaaagtcta	300
tttaaaactg	tagcagtagt	ttacagttct	agcaaagagg	aaagttgtgg	ggttaaactt	360
tgtattttct	ttcttataga	ggcttctaaa	aaggtatttt	tatatgttct	ttttaacaaa	420
tattgtgtac	aaccttttaa	acatcaatgt	ttggatcaaa	acaagacca	gcttattttc	480
tgc						483

<210> 115

<211> 521

<212> DNA

<213> Homo sapien

<400> 115

tgtggtggcg	cgggctgagg	tggaaggccca	ggactctgac	cctgcccctg	ccttcagcaa	60
ggcccccggc	agcgccggcc	actacgaact	gccgtgggtt	gaaaaatata	ggccagtaaa	120
gctgaatgaa	attgtcggga	atgaagacac	cgtgagcagg	ctagagggtc	ttgcaaggga	180
aggaaatgtg	cccaacatca	tcattgcggg	ccctccagga	accggcaaga	ccacaagcat	240
tctgtgcttg	gcccgggccc	tgctggggccc	agcactcaaa	gatgccatgt	tggaactcaa	300
tgcttcaaat	gacaggggca	ttgacgttgt	gaggaataaa	attaaaatgt	ttgctcaaca	360
aaaagtcaact	cttcccaaag	gccgacataa	gatcatcatt	ctggatgaag	cagacagcat	420
gaccgacgga	gccagcaag	ccttgaggag	aacctggaa	atctactcta	aaaccactcg	480
ttcgcccttg	cttgtaatgc	ttcggataag	atcatcgagc	c		521

<210> 116
 <211> 501
 <212> DNA
 <213> Homo sapien

<400> 116
 ctttgcaaag cttttatttc atgtctgcgg catggaatcc acctgcacat ggcattcttag 60
 ctgtgaagga gaaagcagtg cagcagaagg aatgagtgagg cggaaccaac ggcctccaca 120
 agctgccttc cagcagcctg ccaaggccat ggcagagaga gactgcaaac aaacacaagc 180
 aaacagagtc tcttcacagc tggagtctga aagctcatag tggcatgtgt gaattctgaca 240
 aaattaaaag tgtgcatagt ccattacatg cataaaacac taataataat cctgtttaca 300
 cgtgactgca gcaggcaggt ccagctccac cactgccctc ctgccacatc acatcaagtg 360
 ccatgggttta gaggggttttt catatgtaat tcttttattc tgtaaaagggt aacaaaatat 420
 acagaacaaa actttccctt tttaaaacta atgttacaaa tctgtattat cacttgata 480
 taaatagtat ataagctgat c 501

<210> 117
 <211> 451
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(451)
 <223> n = A,T,C or G

<400> 117
 caagggatat atgttgaggg tacrgrgtga cactgaacag atcacaaagc acgagaaaca 60
 ttagttctct ccctccccag cgtctccttc gtctccctgg ttttccgatg tccacagagt 120
 gagattgtcc ctaagtaact gcatgatcag agtgctgkct ttataagact cttcattcag 180
 cgtatccaat tcagcaattg cttcatcaaa tgccgttttt gccaggctac aggcttttc 240
 aggagagttt agaattctcat agtaaaagac tgagaaattt agtgccagac caagacgaat 300
 tgggtgtgta ggctgcattt ctttcttact aatttcaaat gcttcctggg aagcctgctg 360
 ggagttcgac acaagtgggt tgtttgttgc tccagatgcc acttcagaaa gatacctaaa 420
 ataatctcct ttcattttca aagtagaaca c 451

<210> 118
 <211> 501
 <212> DNA
 <213> Homo sapien

<400> 118
 tccggagccg gggtagtcgc cgccgccgcc gccggtgcag ccaactgcagg caccgctgcc 60
 gccgcctgag tagtgggctt aggaaggaag aggtcatctc gctcggagct tcgctcggaa 120
 gggctcttgt tccctgcagc cctcccacgg gaatgacaat ggataaaagt gagctggtag 180
 agaaagccaa actcgtgag caggctgagc gatatgatga tatggctgca gccatgaagg 240
 cagtcacaga acaggggcat gaactctcca acgaagagag aaatctgctc tctgttgctt 300
 acaagaatgt ggtaaggccg cccgccgctc ttcttggegt gtcattctcca gcattgagca 360
 gaaaacagag aggaatgaga agaagcagca gatgggcaaa gagtaccgtg agaagataga 420
 ggagaaactg caggacatct gcaatgatgt tctggagctt gttggacaaa tatcttattc 480
 caatgctaca caaccagaa a 501

<210> 119
 <211> 391

<212> DNA

<213> Homo sapien

<400> 119

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aaaaagcagc argttcaaca caaaatagaa atctcaaag taggatagaa caaaaccaag    60
tgtgtgaggg gggaagcaac agcaaaagga agaaatgaga tgttgcaaaa aagatggagg    120
agggttcccc tctcctctgg ggactgactc aaacactgat gtggcagtat acaccattcc    180
agagtcaggg gtgttcattc ttttttggga gtaagaaaag gtgggggatta agaagacggt    240
tctggaggct tagggaccaa ggctggcttc tttccccctt cccaaccccc ttgatccctt    300
tctctgatca ggggaaaagga gctcgaatga gggaggtaga gttggaaagg gaaaggattc    360
cacttgacag aatgggacag actccttccc a                                     391
```

<210> 120

<211> 421

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(421)

<223> n = A,T,C or G

<400> 120

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tggcaatagc acagccatcc aggagctctt cargcgcac tcggagcagt tcaactgcat    60
gttccgcccgg aaggccttcc tccactggta cacaggcgag ggcattggac agatggagtt    120
caccgaggct gagagcaaca tgaacgacct cgtctctgag tatcaagcag taccaggatg    180
ccaccgcaga agaggaggag gatttcggtg aggaggccga agaggaggcc taaggcagag    240
cccccatcac ctcaggcttc tcagttccct tagccgtctt actcaactgc ccctttctc    300
tccctcagaa tttgtgtttg ctgcctctat cttgtttttt gttttttctt ctgggggggt    360
ctagaacagt gcctggcaca tagtaggcgc tcaataaata cttggttgnt gaatgtctcc    420
t                                     421
```

<210> 121

<211> 206

<212> DNA

<213> Homo sapien

<400> 121

```
agctggcgct agggctcggt tgtgaaatac agcgttgtca gcccttgccg tcagtgtaga    60
aaccacagcc tgtaaggctc gtcttcgtcc atctgctttt ttctgaaata cactaagagc    120
agccacaaaa ctgtaacctc aaggaaacca taaagcttgg agtgccttaa tttttaacca    180
gtttccaata aaacggttta ctacct                                     206
```

<210> 122

<211> 131

<212> DNA

<213> Homo sapien

<400> 122

```
ggagatgaag atgaggaagc tgagtcagct acgggcargc gggcagctga agatgatgag    60
gatgacgatg tcgataccaa gaagcagaag accgacgagg atgactagac agcaaaaaag    120
gaaaagttaa a                                     131
```

<210> 123

<211> 231

<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(231)
<223> n = A,T,C or G

<400> 123
gatgaaaatt aaatacttaa attaatcaaa aggcactacg ataccaccta aaacctactg 60
cctcagtggc agtakgctaa kgaagatcaa gctacagsac atyatcta atgaatgtta 120
gcaattacat akcargaagc atgtttgctt tccagaagac tatggnacaa tggtcattwg 180
ggcccaagag gatatttggc cnggaaagga tcaagataga tnaangtaaa g 231

<210> 124
<211> 521
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(521)
<223> n = A,T,C or G

<400> 124
gagtagcaac gcaaagcgct tggatttgag tctgtgggsg acttcggttc cggctctctgc 60
agcagccgtg atcgcttagt ggagtgtta gggtagttgg ccaggatgcc gaatatcaaa 120
atcttcagca ggcagctccc accaggactt atctcasaaa attgctgacc gcctgggcct 180
ggagctaggc aagggtggtga ctaagaaatt cagcaaccag gagacctgtg tggaaatttg 240
tgaaagtgtg ccgtggagag gatgtctaca ttgttcagag tggntgtggc gaaatcaatg 300
acaattta at ggagcttttg atcatgatta atgcctgcaa gattgcttca gccagccggg 360
ttactgcagt catcccatgc ttcccttatg ccccggcagg ataagaaaaga tnagagccgg 420
gccgccaatc tcagccaagc ttggtgcaaa tatgctatct gtagcagtgc agatcatatt 480
atcaccatgg acctacatgc ttctcaaatt canggccttt t 521

<210> 125
<211> 341
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(341)
<223> n = A,T,C or G

<400> 125
atgcaaaaagg ggacacaggg ggttcaaaaa taaaaatttc tcttccccct ccccaaacct 60
gtaccccgagc tccccgacca caacccctt cctcccccg ggaaagcaag aaggagcagg 120
tgtggcatct gcagctggga agagagaggc cggggagggtg ccgagctcgg tgctggtctc 180
tttccaaata taaatacgtg tgtcagaact ggaaaatcct ccagcaccca ccaccaagc 240
actctccgtt ttctgccggt gtttgagag gggcgnggg caggggccc aggcaccggc 300
tggtgcggt ctactgcatc cgctgggtgt gcaccccgcg a 341

<210> 126
<211> 521

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(521)

<223> n = A,T,C or G

<400> 126

aggttggaga	aggtcatgca	ggtgcagatt	gtccaggskc	agccacaggg	tcaagcccaa	60
caggcccaga	gtggcactgg	acagaccatg	caggtgatgc	agcagatcat	cactaacaca	120
ggagagatcc	agcagatccc	ggtgcagctg	aatgccggcc	agctgcagta	tatccgctta	180
gcccagcctg	tatcaggcac	tcaagttgtg	cagggacaga	tccagacact	tgccaccaat	240
gctcaacaga	ttacacagac	agaggtccag	caaggacagc	agcagttcaa	gccagttcac	300
aagatggaca	gcagctctac	cagatccagc	aagtcaccat	gcctgcgggc	cangacctcg	360
ccagcccatg	ttcatccagt	caagccaacc	agcccttcna	cgggcaggcc	ccccaggtga	420
ccggcgactg	aagggcctga	gctggcaagg	ccaangacac	ccaacacaat	ttttgccata	480
cagcccccag	gcaatgggca	cagcctttct	tcccagagga	c		521

<210> 127

<211> 351

<212> DNA

<213> Homo sapien

<400> 127

tgagatttat	tgcatttcat	gcagcttgaa	gtccatgcaa	aggrgactag	cacagttttt	60
aatgcattta	aaaaataaaa	gggaggtggg	cagcaaacac	acaaagtcct	agtttcctgg	120
gtccctggga	gaaaagagtg	tggcaatgaa	tccaccact	ctccacaggg	aataaatctg	180
tctcttaaat	gcaaagaatg	tttccatggc	ctctggatgc	aaatacacag	agctctgggg	240
tcagagcaag	ggatggggag	aggaccacga	gtgaaaaagc	agctacacac	attcacctaa	300
ttccatctga	gggcaagaac	aacgtggcaa	gtcttggggg	tagcagctgt	t	351

<210> 128

<211> 521

<212> DNA

<213> Homo sapien

<400> 128

tccagacatg	ctcctgtcct	aggcggggag	caggaaccag	acctgctatg	ggaagcagaa	60
agagtttaag	gaaggtttcc	tttcattcct	gttccttctc	ttttgctttt	gaacagtttt	120
taaatatact	aatagctaag	tcatttgcca	gccagggtccc	ggtgaacagt	agagaacaag	180
gagcttgcta	agaattaatt	ttgctgtttt	tcacccatt	caaacagagc	tgccctgttc	240
cctgatggag	ttccattcct	gccagggcac	ggctgagtaa	cacgaagcca	ttcaagaaag	300
gcgggtgtga	aatcactgcc	accccatgga	cagaccctc	actcttcctt	cttagccgca	360
gcgctactta	ataaatatat	ttatactttg	aaattatgat	aaccgatttt	tcccatgcgg	420
catcctaagg	gcacttgcca	gctcttatcc	ggacagtcaa	gcactgttgt	tggaacaacag	480
ataaaggaaa	agaaaaagaa	gaaaacaacc	gcaacttctg	t		521

<210> 129

<211> 521

<212> DNA

<213> Homo sapien

<400> 129

tgagacggac	cactggcctg	gtccccctc	atktgctgtc	gtaggacctg	acatgaaacg	60
------------	------------	-----------	------------	------------	------------	----

cagatctagt	ggcagagagg	aagatgatga	ggaacttctg	agacgtcggc	agcttcaaga	120
agagcaatta	atgaagctta	actcaggcct	gggacagttg	atcttgaaag	aagagatgga	180
gaaagagagc	cgggaaaggt	catctctgtt	agccagtcgc	tacgattctc	ccatcaactc	240
agcttcacat	attccatcat	ctaaaactgc	atctctccct	ggctatggaa	gaaatgggct	300
tcaccggcct	gtttctaccg	acttcgctca	gtataacagc	tatggggatg	tcagcggggg	360
agtgcgagat	taccagacac	ttccagatgg	ccacatgcct	gcaatgagaa	tggaccgagg	420
agtgtctatg	cccaacatgt	tggaaaccaa	gatatttcca	tatgaaatgc	tcatggtgac	480
caacagaggg	ccgaaaccaa	atctcagaga	ggtggacaga	a		521

<210> 130

<211> 270

<212> DNA

<213> Homo sapien

<400> 130

tcactttatt	tttcttgtat	aaaaacccta	tgttgtagcc	acagctggag	cctgagtccg	60
ctgcacggag	actctggtgt	gggtcttgac	gaggtggtca	gtgaactcct	gatagggaga	120
cttggtgaat	acagtctcct	tccagaggtc	gggggtcagg	tagctgtagg	tcttagaaat	180
ggcatcaaag	gtggccttgg	cgaagttgcc	caggggtggca	gtgcagcccc	gggctgaggt	240
gtagcagtca	tcgataccag	ccatcatgag				270

<210> 131

<211> 341

<212> DNA

<213> Homo sapien

<400> 131

ctggaatata	gacccgtgat	cgacaaaact	ttgaacgagg	ctgactgtgc	caccgtcccg	60
ccagccattc	gctcctactg	atgagacaag	atgtggtgat	gacagaaatca	gcttttgtaa	120
ttatgtataa	tagctcatgc	atgtgtccat	gtcataactg	tcttcatacg	cttctgcact	180
ctggggaaga	aggagtacat	tgaagggaga	ttggcaccta	gtggctggga	gcttgccagg	240
aacccagtgg	ccaggggagcg	tggcacttac	ctttgtccct	tgcttcattc	ttgtgagatg	300
ataaaactgg	gcacagctct	taaataaaat	ataaatgaac	a		341

<210> 132

<211> 844

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(844)

<223> n = A,T,C or G

<400> 132

tgaatgggga	ggagctgacc	caggaaatgg	agcttgngga	gaccaggcct	gcaggggatg	60
gaaccttcca	gaagtgggca	tctgtggtgg	tgccctcttg	gaaggagcag	aagtacacat	120
gccatgtgga	acatgagggg	ctgcctgagc	ccctcaccct	gagatggggc	aaggaggagc	180
ctccttcatc	caccaagact	aacacagtaa	tcattgctgt	tccggttgtc	cttggagctg	240
tggtcacct	tggagctgtg	atggcctttg	tgatgaagag	gaggagaaac	acagggtggaa	300
aaggagggga	ctatgctctg	gctccaggct	cccagagctc	tgatatgtct	ctcccagatt	360
gtaaagtgtg	aagacagctg	cctggtgtgg	acttggtgac	agacaatgtc	ttcacacatc	420
tcctgtgaca	tccagagacc	tcagttctct	ttagtcaagt	gtctgatgtt	ccctgtgagt	480
ctgcgggctc	aaagtgaaga	actgtggagc	ccagtcaccc	cctgcacacc	aggaccctat	540
ccctgcactg	ccctgtgttc	ccttccacag	ccaaccttgc	tgctccagcc	aaacattggt	600

ggacatctgc	agcctgtcag	ctccatgcta	ccctgacctt	caactcctca	cttccacact	660
gagaataata	atgtgaatgt	gggtggctgg	agagatggct	cagcgtgac	tgctcttcca	720
aaggtcctga	gttcaaatac	cagcaaccac	atgggtggctc	acaaccatct	gtaatgggat	780
ctaataccct	cttctgcagt	gtctgaagac	asctacagtg	tacttacata	taataataaa	840
taag						844

<210> 133

<211> 601

<212> DNA

<213> Homo sapien

<400> 133

ggccggggcgc	gcgcgcccc	gccacacgca	cgccggggcgt	gccagtttat	aaagggagag	60
agcaagcagc	gagtcctgaa	gctctgtttg	gtgcttttga	tccatttcca	tcggtcctta	120
cagccgctcg	tcagactcca	gcagccaaga	tggtgaagca	gatcgagagc	aagactgctt	180
ttcaggaagc	cttggacgct	gcaggtgata	aacttgtagt	agttgacttc	tcagccacgt	240
gggtgtgggcc	ttgcaaaatg	atcaagcctt	tctttcattc	cctctctgaa	aagtattcca	300
acgtgatatt	ccttgaagta	gatgtggatg	actgtcagga	tgttgcttca	gagtggtgaag	360
tcaaatgcat	gccaacattc	cagtttttta	agaagggaca	aaaggtgggt	gaattttctg	420
gagccaataa	ggaaaagctt	gaagccacca	ttaatgaatt	agtctaatac	tgttttctga	480
aaatataacc	agccattggc	tattttaaac	ttgtaatttt	tttaattttac	aaaaatataa	540
aatatgaaga	cataaaccm	gttgccatct	gcgtgacaat	aaaacattaa	tgctaacact	600
t						601

<210> 134

<211> 421

<212> DNA

<213> Homo sapien

<400> 134

tcacataaga	aattttaagca	agttacrcta	tcttaaaaaa	cacaacgaat	gcatttttaat	60
agagaaaccc	ttccctccct	ccacctccct	ccccaccct	cctcatgaat	taagaatcta	120
agagaagaag	taaccataaa	accaagtttt	gtggaatcca	tcattccagag	tgcttacatg	180
gtgattaggt	taatattgcc	ttcttacaaa	atttctattt	taaaaaaaat	tataaccttg	240
attgcttatt	acaaaaaaat	tcagtacaaa	agttcaatat	attgaaaaat	gctttttccc	300
tccctcacag	caccgtttta	tatatagcag	agaataatga	agagattgct	agtctagatg	360
gggcaatctt	caaattacac	caagacgcac	agtggtttat	ttaccctccc	cttctcataa	420
g						421

<210> 135

<211> 511

<212> DNA

<213> Homo sapien

<400> 135

ggaaaggatt	caagaattag	aggacttgct	tgctrragaa	aaagacaact	ctcgtcgcat	60
gctgacagac	aaagagagag	agatggcgga	aataagggat	caaatgcagc	aacagctgaa	120
tgactatgaa	cagcttcttg	atgtaaagtt	agccctggac	atggaaatca	gtgcttacag	180
gaaactctta	gaaggcgaag	aagagaggtt	gaagctgtct	ccaagccctt	cttcccgtgt	240
gacagtatcc	cgagcatcct	caagtcgtag	tgtaccgtac	aactagagga	aagcgggaaga	300
gggttgatgt	ggaagaatca	gaggcgaagt	agtagtgtaa	gcattctctca	ttccgcctca	360
accactggaa	atgttttgcat	cgaagaaatt	gatgttgatg	ggaaatttat	cccgttgtaa	420
gaacactttc	gaacaggatc	aaccaatggg	aaggcttggg	agatgatcag	aaaaattgga	480
gacacatcag	tcagttataa	atatacctca	a			511

<210> 136
 <211> 341
 <212> DNA
 <213> Homo sapien

<400> 136
 catgggtttc accaggttgg ccaggetgct cttgaactsc tgacctcagg tgatccaccc 60
 gcctcggcct cccaaagtgc tgggattaca ggcgtgagcc accacgcccg gcccccaaag 120
 ctgtttcttt tgtcttttagc gtaaagctct cctgccatgc agtatctaca taactgacgt 180
 gactgccagc aagctcagtc actccgtggg ttttttctct ttcagttct tctctctctc 240
 ttcaagttct gcctcagtga aagctgcagg tccccagtta agtgatcagg tgagggttct 300
 ttgaacctgg ttctatcagt cgaattaatc cttcatgatg g 341

<210> 137
 <211> 551
 <212> DNA
 <213> Homo sapien

<400> 137
 gatgtgttgg accctctgtg tcaaaaaaaaa cctcaciaaag aatccccctgc tcattacaga 60
 agaagatgca tttaaaatat gggttatatt caacttttta tctgaggaca agtatccatt 120
 aattattgtg tcagaagaga ttgaatacct gcttaagaag cttacagaag ctatgggagg 180
 aggttggcag caagaacaat ttgaacatta taaaatcaac tttgatgaca gtaaaaatgg 240
 cttttctgca tgggaactta ttgagcttat tggaaatgga cagtttagca aaggcatgga 300
 ccggcagact gtgtctatgg caattaatga agtctttaat gaacttatat tagatgtgtt 360
 aaagcagggg ttcatgatga aaaaaggcca cagacggaaa aactggactg aaagatgggt 420
 tgtactaaaa cccaacataa tttcttacta tgtgagttag gatctgaagg ataagaaagg 480
 agacattctc ttggatgaaa attgctgtgt agaagtcctt gcctgacaaa agatggaaag 540
 aaatgccttt t 551

<210> 138
 <211> 531
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(531)
 <223> n = A,T,C or G

<400> 138
 gactgggttct ttattttcaaa aagacacttg tcaatattca gtrtcaaaac agttgcacta 60
 ttgattttctc tttctcccaa tcggccccaa agagaccaca taaaaggaga gtacatttta 120
 agccaataag ctgcaggatg tacacctaac agacctccta gaaaccttac cagaaaatgg 180
 ggactgggta gggaaggaaa cttaaaagat caacaaactg ccagcccacg gactgcagag 240
 gctgtcacag ccagatgggg tggccagggt gccacaaacc caaagcaaag tttcaaaata 300
 atataaaatt taaaaagttt tgtacataag ctattcaaga tttctccagc actgactgat 360
 acaaagcaca attgagatgg cacttctaga gacagcagct tcaaaccacg aaaaggggtga 420
 tgagatgaag tttcacatgg ctaaatcagt ggcaaaaaca cagtcttctt tctttctttc 480
 tttcaaggan gcaggaaaagc aattaagtgg tcaccttaac ataaggggga c 531

<210> 139
 <211> 521
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(521)
 <223> n = A,T,C or G

<400> 139
 tgggtgggca ccatggctgg gatcaccacc atcgaggcgg tgaagcgcaa gatccagggt 60
 ctgcagcagc aggcagatga tgcagaggag cgagctgagc gcctccagcg agaagttgag 120
 ggagaaaggc gggcccgga acaggctgag gctgagggtg cctccttgaa ccgtaggatc 180
 cagctggttg aagaagagct ggaccgtgct caggagcgcc tggccactgc cctgcaaaag 240
 ctggaagaag ctgaaaaagc tgctgatgag agtgagagag gtatgaaggt tattgaaaac 300
 cgggccttaa aagatgaaga aaagatggaa ctccaggaaa tccaactcaa agaagctaag 360
 cacattgcag aagaggcaga taggaagtat gaagaggtgg ctcgtaagtt ggtgatcatt 420
 gaaggagact tggaaccgca cagaaggaac gagcttgagc ttggcaaaag tcccgttgcc 480
 cagagatggg atgaaccaga ttagactgat ggaccanaac c 521

<210> 140
 <211> 571
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(571)
 <223> n = A,T,C or G

<400> 140
 aggggcnegc ggtgcgtggg ccaactgggtg accgacttag cctggccaga ctctcagcac 60
 ctggaagcgc cccgagagtg acagcgtgag gctgggaggg aggacttggc ttgagcttgt 120
 taaactctgc tctgagcctc cttgtgcctt gcatttagat ggctcccga aagaaggggtg 180
 gcgagaagaa aaagggccgt tctgccatca acgaagtggg aacccgagaa tacaccatca 240
 acattcacaa gcgcattccat ggagtgggct tcaagaagcg tgcacctcgg gactcaaaag 300
 agattcgga aatttgccatg aaggagatgg gaactccaga tgtgcgcatt gacaccaggc 360
 tcaacaaagc tgtctgggcc aaaggaataa ggaatgtgcc ataccgaatc cgggtgtgcg 420
 ctgtccagaa aacgtaatga ggatgaagat tcaccaaata agctatatac tttggttacc 480
 tatgtacctg ttaccacttt caaaaatcta cagacagtca atgtggatga gaactaatcg 540
 ctgatcgtca gatcaaataa agttataaaa t 571

<210> 141
 <211> 531
 <212> DNA
 <213> Homo sapien

<400> 141
 tcgggagcca cacttgggcc tcttcctctc caaagsgcca gaacctcctt ctctttggag 60
 aatggggagg cctcttgagg acacagaggg ttccaccttg gatgacctct agagaaattg 120
 cccaagaagc ccaccttctg gtcccaacct gcagaccca cagcagtcag ttggtcaggc 180
 cctgctgtag aaggtaactt ggctccattg cctgcttcca accaatgggc aggagagaag 240
 gcctttatct ctgcgccacc cattcctcct gtaccagcac ctccgttttc agtcagtgtt 300
 gtccagcaac ggtaccgttt acacagtcac ctccagacaca ccatttcacc tcccttgcca 360
 agctgttagc cctagagtga ttgcagtga cactgtttac acaccgtgaa tccattccca 420
 tcagtcatt ccagtgggca ccagcctgaa ccatttggtg cctgggtgta actggagtcc 480
 tgtttacaag gtggagtcgg ggcttgctga cttctcttca tttgagggca c 531

<210> 142
 <211> 491
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(491)
 <223> n = A,T,C or G

<400> 142
 acctagacag aagggtgggtg agggaggact ggtagggaggc tgagggaatt ccttggtagt 60
 ttgtcctgaa accctactgg agaagtcagc atgaggcacc tactgagaga agtgcccaga 120
 aactgctgac tgcattctgtt aagagttaac agtaaagagg tagaagtgtg tttctgaatc 180
 agagtggaa cgtctcaagg gtcccacagt ggaggtccct gagctacctc ccttccgtga 240
 gtgggaagag tgaagcccat gaagaactga gatgaagcaa ggatgggggtt cctgggctcc 300
 aggcaagggc tgtgctctct gcagcaggga gcccacagag tcagaagaaa agaactaatc 360
 atttgttgca agaaaccttg cccggatact agcggaaaac tggaggcggn ggtgggggca 420
 caggaaagtg gaagtgattt gatggagagc agagaagcct atgcacagtg gccgagtcca 480
 cttgtaagt g 491

<210> 143
 <211> 515
 <212> DNA
 <213> Homo sapien

<400> 143
 ttcaagcaat tgtaacaagt atatgtagat tagagtgagc aaaatcatat acaattttca 60
 tttccagttg ctattttcca aattgttctg taatgtcgtt aaaattactt aaaaattaac 120
 aaagccaaaa atttatattt tgacaagaaa gccatcccta cattaatctt acttttccac 180
 tcaccggccc atctccttcc tctttttcct aactatgcca ttaaaactgt tctactgggc 240
 cgggcgtgtg gctcatgcct gtaatcccag cattttggga ggccaaggca ggcggtatcat 300
 gaggtcaaga gattgagacc atcctggcca acatggtgaa accccgcctc gactaagaat 360
 acaaaaatta gctgggcatg gtggcgcatg cctgtagtct cagctactcg ggaggctgag 420
 gcagaagaat cgcttgaacc cgggaggcag aggatgcagt gagccccgat cgcgccactg 480
 cactctagcc tgggcgacag actgagactc tgctc 515

<210> 144
 <211> 340
 <212> DNA
 <213> Homo sapien

<400> 144
 tgtgccagtc tacaggccta tcagcagcga ctcttccagc aacagatggg gtccccctgtt 60
 cagcccaacc ccatgagccc ccagcagcat atgctcccaa atcaggccca gtccccacac 120
 ctacaaggcc agcagatccc taattctctc tccaatcaag tgcgtctctc ccagcctgtc 180
 ctttctccac ggccacagtc ccagcccccc cactccagtc cttcccccaag gatgcagcct 240
 cagccttctc cacaccacgt ttccccacag acaagttccc cacatcctgg actggtagtt 300
 gccagggcca accccatgga acaagggcat tttgccagcc 340

<210> 145
 <211> 630
 <212> DNA
 <213> Homo sapien

<400> 145

tgtaaaaact	tggttttaaat	tttgtataaa	ataaagggtgg	tccatgccca	cgggggctgt	60
aggaaatcca	agcagaccag	ctgggggtggg	gggatgtagc	ctacctcggg	ggactgtctg	120
tcctcaaaaac	gggctgagaa	ggcccgtcag	ggggccaggt	cccacagaga	ggcctgggat	180
actcccccaa	cccagagggc	agactgggca	gtggggagcc	cccatcgtgc	cccagaggtg	240
gccacaggct	gaaggagggg	cctgaggcac	cgcagcctgc	aacccccagg	gctgcagtcc	300
actaactttt	tacagaataa	aaggaacatg	gggatgggga	aaaaagcacc	aggtcaggca	360
gggcccagag	gccccagatc	ccaggagggc	caggactcag	gatgccagca	ccaccctagc	420
agctcccaca	gctcctggca	caggaggccg	ccacggattg	gcacaggccg	ctgctggcca	480
tcacgccaca	tttgagagaa	ttgtcccagc	agaggtcagc	tcggaggagc	tcctcgtggg	540
cacacactgt	acgaacacag	atctccttgt	taatgacgta	cacacggcgg	aggctgcggg	600
gacagggcac	gggaggtctc	agccccactt				630

<210> 146

<211> 521

<212> DNA

<213> Homo sapien

<400> 146

atggctgctg	gatttaggtg	gtaatagggg	ctgtgggcca	taaatctgaa	gccttgagaa	60
ccttgggtct	ggagagccat	gaagagggaa	ggaaaagagg	gcaagtcctg	aacctaacca	120
atgacctgat	ggattgctcg	accaagacac	agaagtgaag	tctgtgtctg	tgacttccc	180
acagactgga	gtttttgggtg	ctgaatagag	ccagttgcta	aaaaattggg	ggtttgggtga	240
agaaatctga	ttgtttgtgtg	tattcaatgt	gtgattttta	aaataaacag	caacaacaat	300
aaaaaccctg	actggctggt	tttccctgt	attctttaca	actatttttt	gaccctctga	360
aaattattat	acttcaccta	aatggaagac	tgctgtgttt	gtggaaattt	tgtaattttt	420
taattttatt	tattctctct	cctttttatt	ttgcctgcag	aatccgttga	gagactaata	480
aggcttaata	tttaattgat	ttgtttaata	tgtatataaa	t		521

<210> 147

<211> 562

<212> DNA

<213> Homo sapien

<400> 147

ggcatgcgag	cgcactcggc	ggacgcgaagg	gcggcgggga	gcacacggag	cactgcaggc	60
gccgggttgg	gacagcgtct	tcgctgctgc	tggatagtcg	tgttttcggg	gatcgaggat	120
actcaccaga	aaccgaaaat	gccgaaacca	atcaatgtcc	gagttaccac	catggatgca	180
gagctggagt	ttgcaatcca	gccaaataca	actggaaaac	agctttttga	tcagggtgga	240
aagactatcg	gcctccggga	agtgtggtac	tttggcctcc	actatgtgga	taataaagga	300
tttctacct	ggctgaagct	ggataagaag	gtgtctgccc	aggaggtcag	gaaggagaat	360
ccctccagt	tcaagttccg	ggccaaagtt	ctaccctgaa	gatgtggctg	aggagctcat	420
ccaggacatc	accagaaaac	ttttcttctt	tcaagtgaag	gaaggaaatc	ttagcgatga	480
gatctactgc	cccccttgar	actgccgtgc	tcttgggggtc	ctacgcttgt	gcatgccaaag	540
tttggggact	accaccaaga	ag				562

<210> 148

<211> 820

<212> DNA

<213> Homo sapien

<400> 148

gaaggagtcg	ggatactcag	cattgatgca	ccccaatctc	aaagcggcat	tcttcggcag	60
gtctctggga	caatctctag	ggtcactacc	tggaaactcg	ttagggtaga	actgaatgct	120
gaaaggaaaag	aacacctgca	gaaccggaca	gaaattcacc	ccggcgatca	gctgattgat	180

ctcgggtcgac	cagaagtcac	ggctaaagat	gacgaggacg	ttgtcaattc	cctgggcttt	240
tcgaagttag	tccagcagca	gtctgaggta	ttcgggcccg	ttatgcacct	ggaccaccag	300
caccagctcc	cggggggccc	aggtgccagc	cttatctaca	ttcctcaggg	tctgatcaaa	360
gttcagctgg	tacaccaggg	accggtaccg	cagcgtcagg	ttgtccgctc	gggctggggg	420
accgccggga	ccaggggaagc	cgccgacacg	ttggagaccc	tgcggatgcc	cacagccaca	480
gaggggtggt	ccccaccgcg	gccgccggca	ccccgcgcgg	gttcggcgtc	cagcaacggt	540
ggggcgaggg	cctcgttctt	cctttgtcgc	ccattgctgc	tccagaggac	gaagccgcag	600
gcggccacca	cgagcgtcag	gattagcacc	ttccgtttgt	agatgcggaa	cctcatggtc	660
tccagggccg	ggagcgcagc	tacagctcga	gcgtcggcgc	cgccgctagg	agccgcggct	720
cggcttcgtc	tccgtcctct	ccattcagca	ccacgggtcc	cggaaaaagc	tcagccscgg	780
tcccaaccgc	accctagctt	cgttacctgc	gcctcgtttg			820

<210> 149

<211> 501

<212> DNA

<213> Homo sapien

<400> 149

cagattttta	tttgcagtcg	tcactggggc	cgtttcttgc	tgcttatttg	tctgctagcc	60
tgctcttcca	gctgcatggc	caggcgcaag	gccttgatga	catctcgcag	ggctgagaaa	120
tgcttggtct	gctgggccag	agcagattcc	gctttgttca	caaaggctct	caggtcatag	180
tctggctgct	cggctcatct	agagagctca	agccagtctg	gtccttgctg	tatgatctcc	240
ttgagctctt	ccatagcctt	ctcctccagc	tccctgatct	gagtcatggc	ttcgttaaag	300
ctggacatct	gggaagacag	ttcctcctct	tccttgata	aattgcctgg	aatcagcgcc	360
ccgttagagc	aggcttccat	ctcttctgtt	tccatttgaa	tcaactgctc	tccactgggc	420
ccactgtggg	ggctcagctc	cttgaccctg	ctgcatatct	taagggtgtt	taaaggatat	480
tcacaggagc	ttatgcctgg	t				501

<210> 150

<211> 511

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(511)

<223> n = A,T,C or G

<400> 150

ctcctcttgg	tacatgaacc	caagttgaaa	gtggacttaa	caaagtatct	ggagaaccaa	60
gcattctgct	ttgactttgc	atttgatgaa	acagcttcga	atgaagttgt	ctacaggttc	120
acagcaaggc	cactggtaca	gacaatcttt	gaagggtggaa	aagcaacttg	ttttgcatat	180
ggccagacag	gaagtggcaa	gacacatact	atgggcggag	acctctctgg	gaaagccag	240
aatgcattca	aagggatcta	tgccatggcc	ttccgggacg	tcttcttctg	aagaatcaac	300
cctgctaccg	gaagttgggc	ctggaagtct	atgtgacatt	cttcgagatc	tacaatggga	360
agctgtttga	cctgctcaac	aagaaggcca	agcttgcgcg	tgctggaaga	cggcaagcaa	420
caggtgcaag	tggtgggggc	ttgcaggaac	atctggntaa	ctctgcttga	tgatggcant	480
caagatgata	gacatgggca	gcgcctgcag	a			511

<210> 151

<211> 566

<212> DNA

<213> Homo sapien

<400> 151

tcccgaattc	aagcgacaaa	ttggawagt	aatggaaga	tgcctatcat	gaacatcagg	60
caaattcttt	gcgccaagat	ctgatgagac	gacaggaaga	attaagacgc	atggaagaac	120
ttcacatca	agaaatgcag	aaacgtaaag	aatgcaatt	gaggcaagag	gaggaacgac	180
gtagaagaga	ggaagagatg	atgattcgtc	aacgtgagat	ggaagaacaa	atgagggcgcc	240
aaagagagga	aagttacagc	cgaatgggct	acatggatcc	acgggaaaga	gacatgcgaa	300
tgggtggcgg	aggagcaatg	aacatgggag	atccctatgg	ttcaggaggc	cagaaatttc	360
cacctctagg	aggtggtggt	ggcatagggt	atgaagctaa	tcctggcggt	ccaccagcaa	420
ccatgagtgg	ttccatgatg	ggaagtgaca	tgcgtactga	gcgctttggg	cagggagggtg	480
cggggcctgt	gggtggacag	ggtcctagag	gaatggggcc	tggaaactcca	gcaggatatg	540
gtagagggag	agaagagtac	gaaggc				566

<210> 152

<211> 518

<212> DNA

<213> Homo sapien

<400> 152

ttcgtgaaga	ccctgactgg	taagaccatc	actctcgaag	tggagcccga	gtgacaccat	60
tgagaatgtc	aaggcaaaga	tccaagacaa	ggaaggcatc	cctcctgacc	agcakagggt	120
gatctttgct	gggaaacagc	tggaaagatg	acgcaccctg	tctgactaca	acatccagaa	180
agagtccacc	ctgcacctgg	tgctccgtct	cagaggtggg	atgcaaactct	tcgtgaagac	240
cctgactggg	aagaccatca	ccctcgagggt	ggagcccagt	gacaccatcg	agaatgtcaa	300
ggcaaagatc	caagataagg	aaggcatccc	tcctgatcag	cagaggttga	tctttgctgg	360
gaaacagctg	gaagatggac	gcaccctgtc	tgactacaac	atccagaaaag	agtccactct	420
gcacttggtc	ctgcgcttga	gggggggtgt	ctaagtttcc	ccttttaagg	tttcaacaaa	480
tttcattgca	ctttccttcc	aataaagttg	ttgcattc			518

<210> 153

<211> 542

<212> DNA

<213> Homo sapien

<400> 153

gcgcgggtgc	gtggggccact	gggtgaccga	cttagcctgg	ccagactctc	agcacctgga	60
agcgccccga	gagtgcagac	gtgaggctgg	gagggaggac	ttggcctgag	cttggttaaac	120
tctgctctga	gcctccttgt	cgctgcatt	tagatggctc	ccgcaaagaa	gggtggcgag	180
aagaaaaagg	gccgttctgc	catcaacgaa	gtggtaaccc	gagaatacac	catcaacatt	240
cacaagcgca	tccatggagt	gggcttcaag	aagcgtgcac	ctcggggcact	caaagagatt	300
cggaaatttg	ccatgaagga	gatgggaact	ccagatgtgc	gcattgcac	caggctcaac	360
aaagctgtct	gggcccagg	aataaggaat	gtgccatacc	gaatccgtgt	gcggctgtcc	420
agaaaacgta	atgaggatga	agattcacca	aataagctat	atactttggt	tacctatgta	480
cctgttacca	ctttcaaaaa	tctacagaca	gtcaatgtgg	atgagaacta	atcgctgac	540
gt						542

<210> 154

<211> 411

<212> DNA

<213> Homo sapien

<400> 154

aattctttat	ttaaataaac	aaactcatct	tcctcaagcc	ccagaccatg	gtaggcagcc	60
ctccctctcc	atccctctac	cccacccctt	agccacagtg	aagggaatgg	aaaatgagaa	120
gccacgaggg	ccctgcccag	ggaaggctgc	cccagatgtg	tggtgagcac	agtcagtgc	180
gctgtggctg	gggcagcagc	tgccacaggc	tcctccctat	aaattaagtt	cctgcagcca	240
cagctgtggg	agaagcatac	ttgtagaagc	aaggccagtc	cagcatcaga	aggcagaggg	300

agcatcagtg actcccagcc atggaatgaa cggaggacac agagctcaga gacagaacag 360
gccaggggga agaaggagag acagaatagg ccagggcatg gcggtgaggg a 411

<210> 155

<211> 421

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(421)

<223> n = A,T,C or G

<400> 155

tgatgaatct ggggtgggctg gcagtagccc gagatgatgg gctcttctct ggggatccca 60
actggttccc taagaaatcc aaggagaatc ctcggaactt ctcggataac cagctgcaag 120
agggcaagaa cgtgatcggg ttacagatgg gcaccaaccg cggggcgtct cangcaggca 180
tgactggcta cgggatgcca cgccagatcc tctgatccca ccccaggcct tgcccctgcc 240
ctcccacgaa tgggttaatat atatgtagat atatatttta gcagtacat tcccagagag 300
ccccagagct ctcaagctcc tttctgtcag ggtggggggg tcaagcctgt cctgtcacct 360
ctgaagtgcc tgctggcatc ctctcccca tgcttactaa tacattccct tcccatagc 420
c 421

<210> 156

<211> 670

<212> DNA

<213> Homo sapien

<400> 156

agcggagctc cctcccctgg tggtacaac ccacacacgc caggctcagg catcgagcag 60
aactccagcg actgggtaac cactgacatt caggatgaag tgccgggacac ctacctggat 120
acacaggtgg tgggacagac aggtgtcatc cgcagtgtca cggggggcat gtgctctgtg 180
tacctgaagg acagtgagaa ggttgtcagc atttccagtg agcacctgga gcctatcacc 240
cccaccaaga acaacaagg gaaagtgatc ctgggcgagg atcgggaagc cacgggcgtc 300
ctactgagca ttgatggtga ggatggcatt gtccgtatgg accttgatga gcagctcaag 360
atcctcaacc tccgcttcct ggggaagctc ctggaagcct gaagcaggca gggccggtgg 420
acttcgtcgg atgaagagt atcctccttc ctccctggc ccttggctgt gacacaagat 480
cctcctgcag ggctaggcgg attgttctgg atttcccttt gtttttcctt ttaggtttcc 540
atcttttccc tccttgggtgc tcattggaat ctgagtagag tctgggggag ggtccccacc 600
ttcctgtacc tcctccccc acgttgcttt tgttgtaccg tctttcaata aaaagaagct 660
gtttggtcta 670

<210> 157

<211> 421

<212> DNA

<213> Homo sapien

<400> 157

ggttcacagc actgctgctt gtgtgttgcc ggccaggaat tccaggctca caaggctatc 60
ttagcagctc gttctccggg ttttagtgcc atgtttgaac atgaaatgga ggagagcaaa 120
aagaatcgag ttgaaatcaa tgatgtggag cctgaagttt ttaaggaaat gatgtgcttc 180
atttacacgg ggaaggctcc aaacctcgac aaaatggctg atgatttgct ggcagctgct 240
gacaagtatg ccttgagcgg cttaaaggct atgtgtgagg atgccctctg cagtaacctg 300
tccgtggaga acgctgcaga aattctcatc ctggccgacc tccacagtgc agatcagttg 360
aaaactcagg cagtggattt catcaactat catgcttcgg atgtcttgga gacctcttgg 420

g

421

<210> 158
 <211> 321
 <212> DNA
 <213> Homo sapien

<400> 158

tcgtagccat	ttttctgctt	ctttggagaa	tgacgccaca	ctgactgctc	attgtcgttg	60
gttccatgcc	aattgggtgaa	atagaacctc	atccggtagt	ggagccggag	ggacatcttg	120
tcatcaacgg	tgatgggtgcg	atltggagca	taccagagct	tggtgttctc	gccatacagg	180
gcaaagaggt	tgtgacaaag	aggagagata	cggcatgcct	gtgcagccct	gatgcacagt	240
tcctctgctg	tgtactctcc	actgcccagc	cggagggggt	ccctgtccga	cagatagaag	300
atcacttcca	cccctggctt	g				321

<210> 159
 <211> 596
 <212> DNA
 <213> Homo sapien

<400> 159

tggcacactg	ctcttaagaa	actatgawga	tctgagattt	ttttgtgtat	gtttttgact	60
cttttgagtg	gtaatcatat	gtgtctttat	agatgtacat	acctccttgc	acaaatggag	120
gggaattcat	tttcatcact	gggagtgtcc	ttagtgtata	aaaaccatgc	tggtatatgg	180
cttcaagttg	taaaaatgaa	agtgacttta	aaagaaaata	gggatgggtc	caggatctcc	240
actgataaga	ctgtttttta	gtaacttaag	gacctttggg	tctacaagta	tatgtgaaaa	300
aaatgagact	tactgggtga	ggaaattcat	tgtttaaaga	tggtcgtgtg	tgtgtgtgtg	360
tgtgtgtgtg	tgtgtgtgtg	ttttgttttt	taaggagggg	aatttattat	ttaccgttgc	420
ttgaaattac	tgkgtaaata	tatgtytgat	aatgatttgc	tytttgvcma	ctaaaattag	480
gvctgtataa	gtwctaratg	cmtccctggg	kgttgatytt	ccmagatatt	gatgatamcc	540
cttaaaattg	taaccygcct	ttttcccttt	gctytc matt	aaagtctatt	cmaaag	596

<210> 160
 <211> 515
 <212> DNA
 <213> Homo sapien

<400> 160

gggggtaggc	tctttattag	acggttattg	ctgtactaca	gggtcagagt	gcagtgtgtaag	60
cagtgtcaga	ggcccgcgtt	cagcccaaga	atgtggattt	tctctcccta	ttgatcacag	120
tgggtgggtt	tcttcagaaa	agccccagag	gcagggacca	gtgagctcca	aggtagaag	180
tggaactgga	aggcttcagt	cacatgctgc	ttccacgctt	ccaggctggg	cagcaaggag	240
gagatgcccc	tgacgtgcca	ggtctcccca	tctgacacca	gtgaagtctg	gtaggacagc	300
agccgcacgc	ctgcctctgc	caggaggcca	atcatggtag	gcagcattgc	agggtcagag	360
gtctgagtcc	ggaataggag	caggggcagg	tccttgcgga	gaggcacttc	tggcctgaag	420
acagctccat	tgagcccctg	cagtacaggy	gtagtgcctt	ggaccaagcc	cacagcctgg	480
taaggggcgc	ctgccagggc	cacggccagg	aggca			515

<210> 161
 <211> 936
 <212> DNA
 <213> Homo sapien

<400> 161

taattttctta	gtcgttttga	atccttaagc	atgcaaaagc	tttgaacaga	agggttcaca	60
-------------	------------	------------	------------	------------	------------	----

aaggaaccag	ggttgtctta	tggcatccag	ttaagccaga	gctgggaatg	cctctgggtc	120
atccacatca	ggagcagaag	cacttgactt	gtcggtcctg	ctgccacggt	ttgggcgccc	180
accacgccc	cgtccacctc	gtcctcccct	gccgccacgt	cctgggcggc	caaggtctcc	240
aaaattgatc	tccagctgag	acgttatatc	atttgctggc	ttccggaaat	gatgggtccat	300
aaccgaatct	tcagcatgag	cctcttcact	ctttgattta	tgaagaacaa	atcccttctt	360
ccactgccc	tcagcacctt	catttggttt	toggatatta	aattctactt	ttgcccggtc	420
cttattttga	atagccttcc	actcatccaa	agtcattctt	tttgaccctt	cctcttttac	480
ctcttcaact	tcattctcct	tattttcagt	gtctgccact	ggatgatgtt	cttcaccttc	540
aggtgtttcc	tcagtcacat	ttgattgatc	caagtcagtt	aattcgtctt	tgacagttcc	600
ccagttgtga	gatccgctac	ctccacgttt	gtcctcgtgc	ttcaggccag	atctatcact	660
tccactatgc	ctatcaaatt	cacgtttgcc	acgagaatca	aatccatctc	ctcggcccat	720
tccacgtcca	cggccccctc	gacctcttcc	aagaccacca	cgacctcgaa	taggtcggtc	780
aataatcggt	ctatcaactg	aaaattcgcc	tccttcaccc	ttttcttcaa	gtggcttttc	840
gaatcttcgt	tcacgaggtg	gtcgcttttc	tggtcttcta	tcaattattt	tcccttcacc	900
ctgaagttgt	tgatcaggtc	ttcttccaac	tcgtgc			936

<210> 162

<211> 950

<212> DNA

<213> Homo sapien

<400> 162

aagcggatgg	acctgagtca	gccgaatcct	agcccccttc	cttgggcctg	ctgtggtgct	60
cgacatcagt	gacagacgga	agcagcagac	catcaaggct	acgggaggcc	cggggcgctt	120
gcgaagatga	agtttggctg	cctctccttc	cggcagcctt	atgctggctt	tgtcttaaat	180
ggaatcaaga	ctgtggagac	gcgctggcgt	cctctgctga	gcagccagcg	gaactgtacc	240
atcgccgtcc	acattgctca	cagggactgg	gaaggcgatg	cctgtcggga	gctgctggtg	300
gagagactcg	ggatgactcc	tgctcagatt	caggccttgc	tcaggaaagg	ggaaaagtth	360
ggtcgaggag	tgatagcggg	actcgttgac	attggggaaa	ctttgcaatg	ccccgaagac	420
ttactcccg	atgaggttgt	ggaactagaa	aatcaagctg	cactgaccaa	cctgaagcag	480
aagtacctga	ctgtgatttc	aaaccccgag	tggttactgg	agcccatacc	taggaaagga	540
ggcaaggatg	tattccaggt	agacatccca	gagcacctga	tccctttggg	gcatgaagtg	600
tgacaagtgt	gggctcctga	aaggaatgtt	ccrgagaaac	cagctaaatc	atggcacctt	660
caatttgcca	tcgtgacgca	gacctgtata	aattaggtta	aagatgaatt	tccactgctt	720
tggagagtcc	caccacttaa	gcactgtgca	tgtaaacagg	ttcctttgct	cagatgaagg	780
aagtaggggg	tggggctttc	cttgtgtgat	gcctccttag	gcacacaggc	aatgtctcaa	840
gtactttgac	cttagggtag	aaggcaaagc	tgccagtaaa	tgtctcagca	ttgctgctaa	900
ttttggctct	gctagtttct	ggattgtaca	aataaatgtg	ttgtagatga		950

<210> 163

<211> 475

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(475)

<223> n = A,T,C or G

<400> 163

tcgagcggcc	gcccgggcag	gtgtcggagt	ccagcacggg	aggcgtggtc	ttgtagttgt	60
tctccggctg	cccattgctc	tcccactcca	cggcgatgtc	gctgggatag	aagcctttga	120
ccaggcaggt	caggctgacc	tggttcttgg	tcattctctc	cggggatggg	ggcaggggtg	180
acacctgtgg	ttctcggggc	tgccctttgg	ctttggagat	ggttttctcg	atgggggctg	240
ggagggcttt	gttggagacc	ttgcacttgt	actccttgcc	attcaaccag	tcctggtgca	300

```

ngacggtgag gacgctnacc acacggtacg ngctggtgta ctgctcctcc cgcggttttg 360
tcttggcatt atgcacctcc acgccgtcca cgtaccaatt gaacttgacc tcagggtctt 420
cgtggetcac gtccaccacc acgcatgtaa cctcaaanct cggnccgcan cacgc 475

```

<210> 164

<211> 476

<212> DNA

<213> Homo sapien

<400> 164

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agcgtggtcg cggccgaggt ctgaggttac atgcgtggtg gtggacgtga gccacgaaga 60
ccctgaggtc aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa 120
gccgcgggag gagcagtaca acagcacgta ccgtgtggtc agcgtcctca ccgtcctgca 180
ccaggactgg ctgaatggca aggagtacaa gtgcaagggtc tccaacaaag ccctccagc 240
ccccatcgag aaaaccatct ccaaagccaa agggcagccc cgagaaccac aggtgtacac 300
cctgccccca tcccgggagg agatgaccaa gaaccaggtc agcctgacct gcctggtcaa 360
aggcttctat cccagcgaca tcgcccgtgg agtgggagag caatgggcag ccggagaaca 420
actacaagac cagcctccc gtgctggact ccgacacctg ccgggcggcc gctcga 476

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<210> 165

<211> 256

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(256)

<223> n = A,T,C or G

<400> 165

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agcgtggttn cggccgaggt cccaaccaag gctgcancct ggatgccatc aaagtcttct 60
gcaacatgga gactggtgag acctgctgtg accccactca gcccagtgtg gcccagaaga 120
actggtacat cagcaagaac cccaaggaca agaggcatgt ctggttcggc gagagcatga 180
ccgatggatt ccagttcgag tatggcgggc agggctccga ccttgccgat gtggacctgc 240
ccgggcggnc gctcga 256

```

<210> 166

<211> 332

<212> DNA

<213> Homo sapien

<400> 166

```

agcgtggtcg cggccgaggt caagaacccc gcccgacct gccgtgacct caagatgtgc 60
cactctgact ggaagagtgg agagtactgg attgacccca accaaggctg caacctggat 120
gccatcaaaag tcttctgcaa catggagact ggtgagacct gcgtgtaccc cactcagccc 180
agtgtggccc agaagaactg gtacatcagc aagaacccca aggacaagag gcatgtctgg 240
ttcggcgaga gcatgaccga tggattccag ttcagatatg gcggccaggg ctccgaccct 300
gccgatgtgg acctgcccgg gcggccgctc ga 332

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<210> 167

<211> 332

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(332)
 <223> n = A,T,C or G

<400> 167

tcgagcggtc	gcccgggcag	gtccacatcg	gcagggtcgg	agccctggcc	gccatactcg	60
aactggaatc	catcggnat	gctctcgccg	aaccagacat	gcctcttgnc	cttgggggttc	120
ttgctgatgt	accagntctt	ctggggccaca	ctgggctgag	tggggtacac	gcagggtctca	180
ccantctcca	tgttgcanaa	gactttgatg	gcatccaggt	tgcagccttg	gttgggggtca	240
atccagtact	ctccactctt	ccagacagag	tggcacatct	tgaggtcacg	gcagggtgcgg	300
gcgggggttct	tgacctcggt	cgcgaccacg	ct			332

<210> 168
 <211> 276
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(276)
 <223> n = A,T,C or G

<400> 168

tcgagcggcc	gcccgggcag	gtcctcctca	gagcggtagc	tgttcttatt	gccccggcag	60
cctccataga	tnaagttatt	gcangagttc	ctctccacgt	caaagtacca	gcgtgggaag	120
gatgcacggc	aaggccaggt	gactgcgttg	gcgggtgcagt	attcttcata	gttgaacata	180
tcgctggagt	ggacttcaga	atcctgcctt	ctgggagcac	ttgggacaga	ggaatccgct	240
gcattcctgc	tgggtggacct	cggccgcgac	cacgct			276

<210> 169
 <211> 276
 <212> DNA
 <213> Homo sapien

<400> 169

agcgtggtcg	cggccgaggt	ccaccagcag	gaatgcagcg	gattcctctg	tcccaagtgc	60
tcccagaagg	caggattctg	aagaccactc	cagcgatatg	ttcaactatg	agaataactg	120
caccgccaac	gcagtcactg	ggccttgccg	tgcatccttc	ccacgctggt	actttgacgt	180
ggagaggaac	tcctgcaata	acttcactta	tggaggctgc	cggggcaata	agaacagcta	240
ccgctctgag	gaggacctgc	ccgggcggcc	gtcga			276

<210> 170
 <211> 332
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(332)
 <223> n = A,T,C or G

<400> 170

tcgagcggcc	gcccgggcag	gtccacatcg	gcagggtcgg	agccctggcc	gccatactcg	60
aactggaatc	catcggtcat	gctctcgccg	aaccagacat	gcctcttgtc	cttgggggttc	120
ttgctgatgt	accagttctt	ctggggccaca	ctgggctgag	tggggtacac	gcagggtctca	180

ccagtctcca	tgttgcagaa	gactttgatg	gcaccaggt	tgcagccttg	gttgggggtca	240
atccagtact	ctccactctt	ccagccagaa	tggcacatct	tgaggtcacg	gcangtgagg	300
gcgggggttct	tgacctcggc	cgcgaccacg	ct			332

<210> 171
 <211> 333
 <212> DNA
 <213> Homo sapien

<400> 171						
agcgtgggtcg	cggccgaggt	caagaaaccc	cgcccgacc	tgccgtgacc	tcaagatgtg	60
ccactctggc	tggaaagagt	gagagtactg	gattgacccc	aaccaaggct	gcaacctgga	120
tgccatcaaa	gtcttctgca	acatggagac	tggtagacc	tgctgtacc	ccactcagcc	180
cagtgtggcc	cagaagaact	ggtacatcag	caagaacccc	aaggacaaga	ggcatgtctg	240
gctcggcgag	agcatgaccg	atggattcca	gttcgagtat	ggcggccagg	gctccgaccc	300
tgccgatgtg	gacctgccc	ggcgccgct	cga			333

<210> 172
 <211> 527
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(527)
 <223> n = A,T,C or G

<400> 172						
agcgtgggtcg	cggccgaggt	cctgtcagag	tggcactggt	agaagntcca	ggaaccctga	60
actgtaaggg	ttcttcatca	gtgccaacag	gatgacatga	aatgatgtac	tcagaagtgt	120
cctgnaatgg	ggcccatgan	atggttgnt	gagagagagc	ttcttgtcct	acattcggcg	180
ggtatgggtct	tggcctatgc	cttatggggg	tggccgttgn	ggcggtgng	gtccgcctaa	240
aaccatgttc	ctcaaagatc	atttgttgcc	caacactggg	ttgctgacca	naagtgccag	300
gaagctgaat	accatttcca	gtgtcatacc	caggggtggg	gacgaaagg	gtcttttgaa	360
ctgtggaagg	aacatccaag	atctctgntc	catgaagatt	ggggtgtgga	agggttacca	420
gttggggaag	ctcgtgtct	tttccctcc	aatcangggc	tcgctcttct	gaatattctt	480
cagggcaatg	acataaattg	tatattcgg	tcccggttcc	aggccag		527

<210> 173
 <211> 635
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(635)
 <223> n = A,T,C or G

<400> 173						
tcgagcggcc	gcccgggcag	gtccaccaca	cccaattcct	tgctgggtatc	atggcagccg	60
ccacgtgcc	ggattaccgg	ctacatcatc	aagtatgaga	agcctgggtc	tcctccaga	120
gaagtgggtc	ctcgccccc	ccctgggtgc	acagaggcta	ctattactgg	cctggaaccg	180
ggaaccgaat	atacaattta	tgtcattgcc	ctgaagaata	atcagaagag	cgagccctcg	240
attggaagga	aaaagacaga	cgagcttccc	caactggtaa	cccttcacac	ccccaatctt	300
catggaccag	agatcttgga	tgttccttcc	acagttcaaa	agaccctttt	cgtcacccac	360

cctgggtatg	acactggaaa	tggatttcag	cttcctggca	cttctggtca	gcaacccagt	420
gttggggcaac	aaatgatctt	tgangaacat	ggnttttaggc	ggaccacacc	ggccacaacg	480
ggcaccoccca	taaggcatag	gccaagaaca	taccgcncga	atgtaggaca	agaagctctn	540
tctcanacaa	ncatctcatg	ggccccattc	cangacactt	ctgagtagcat	canttcatgg	600
catcctggtg	gcactgataa	aaacccttac	agtta			635

<210> 174

<211> 572

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(572)

<223> n = A,T,C or G

<400> 174

agcgtggtcg	cgggcgaggt	cctgtcagag	tggcactggt	agaagttcca	ggaaccctga	60
actgtaaggg	ttcttcatca	gtgccaacag	gatgacatga	aatgatgtac	tcagaagtgt	120
cctggaatgg	ggcccatgag	atggttgtct	gagagagagc	ttcttgcct	acattcggcg	180
ggtatggtct	tggcctatgc	cttatggggg	tggccgttgt	gggcggtgtg	gtccgcctaa	240
aaccatgttc	ctcaaagatc	atttgttgcc	caacactggg	ttgctgacca	gaagtgccag	300
gaagctgaat	accatttcca	gtgtcatacc	caggggtgggt	gacgaaaggg	gtcttttgaa	360
ctgtggaagg	aacatccaag	atctctggtc	catgaagatt	ggggtgtgga	agggttacca	420
gttggggaag	ctcgtctgtc	tttttccttc	caatcanggg	ctcgtctctc	tgattattct	480
tcagggcaat	gacataaatt	gtatattcgg	ntcccgggtn	cagccaataa	taataaccct	540
ctgtgacacc	anggcggggc	cgaagganca	ct			572

<210> 175

<211> 372

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(372)

<223> n = A,T,C or G

<400> 175

agcgtggtcg	cggccgaggt	cctcaccaga	ggtaccacct	acaacatcat	agtggaggca	60
ctgaaagacc	agcagaggca	taaggttcgg	gaagaggttg	ttaccgtggg	caactctgtc	120
aacgaaggct	tgaaccaacc	tacggatgac	tcgtgctttg	acccctacac	agtttcccat	180
tatgccgttg	gagatgagt	ggaacgaatg	tctgaatcag	gctttaaact	gttgtgccag	240
tgcttangct	ttggaagtgg	tcatttcaga	tgtgattcat	ctagatggtg	ccatgacaat	300
ggtgtgaact	acaagattgg	agagaagtgg	gaccgtcagg	gagaaaatgg	acctgcccgg	360
gcggccgctc	ga					372

<210> 176

<211> 372

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(372)

<223> n = A,T,C or G

<400> 176

```
tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt    60
gtagttcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc    120
aaagcctaag cactggcaca acagtttaaa gcctgattca gacattcgtt cccactcatc    180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcatccg taggttggtt    240
caagccttgc ntgacagagt tgcccacggg aacaacctct tcccgaacct tatgcctctg    300
ctggtctttc agtgcctcca ctatgatgtt gtaggtggtg cctctggtga ggacctcggc    360
cgcgaccacg ct                                     372
```

<210> 177

<211> 269

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(269)

<223> n = A,T,C or G

<400> 177

```
agcgtggccg cggccgaggt ccattggctg gaacggcatc aacttgaag ccagtgatec    60
tctcagcett ggttctccag ctaatgggtg tggnggtctc agtagcatct gtcacacgag    120
cccttcttgg tgggctgaca ttctccagag tgggtgacaac accctgagct ggtctgcttg    180
tcaaagtgtc cttaagagca tagacactca cttcatattt ggcgncacc ataagtcctg    240
atacaaccac ggaatgacct gtcaggaac                                     269
```

<210> 178

<211> 529

<212> DNA

<213> Homo sapien

<400> 178

```
tcgagcggcc gcccgggcag gtccctcagac cgggttctga gtacacagtc agtgtggttg    60
ccttgcacga tgatatggag agccagcccc tgattggaac ccagtccaca gctattcctg    120
caccaactga cctgaagttc actcagggtc caccacaag cctgagcgcc cagtggacac    180
cacccaatgt tcagctcact ggatatecag tgcgggtgac cccaaggag aagaccggac    240
caatgaaaga aatcaacctt gctcctgaca gtcacatcgt ggttgatca ggacttatgg    300
cggccaccaa atatgaagtg agtgtctatg ctcttaagga cactttgaca agcagaccag    360
ctcaggggtg tgtaaccact ctggagaatg tcagcccacc aagaagggtc cgtgtgacag    420
atgctactga gaccaccatc accattagct ggagaaccaa gactgagacg atcactggct    480
tccaagttga tgccgttcca gccaatggac ctcggccgcg accacgctt                                     529
```

<210> 179

<211> 454

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(454)

<223> n = A,T,C or G

<400> 179

```

agcgtgggtcg cggccgaggt ctggccgaac tgccagtgtg caggggaagat gtacatgtta      60
tagntcttct cgaagtcccc ggccagcagc tccacggggg ggtctcctgc ctccaggcgc      120
ttctcattct catggatctt cttcacccgc agcttctgct tctcagtcag aagggtgttg      180
tcctcatccc tctcatcacg ggtgaccagg acgttcttga gccagtcccc catgcgcagg      240
gggaattcgg tcagctcaga gtccaggcaa ggggggatgt atttgcaagg cccgatgtag      300
tccaagtgga gcttgtggcc cttcttgggt ccctccaagg tgcactttgt ggcaaagaag      360
tggcaggaag agtcgaaggt cttgttgtca ttgctgcaca ccttctcaaa ctgcgcaatg      420
ggggctgggc agacctgccc gggcggccgc tcga                                     454

```

<210> 180
 <211> 454
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(454)
 <223> n = A,T,C or G

```

<400> 180
tcgagcgggc gcccgggcag gtctgcccag ccccatgttg cgagtttgag aaggngtgca      60
gcaatgacaa caagaccttc gactcttcct gccacttctt tgccacaaag tgcaccctgg      120
agggcaccaa gaagggccac aagctccacc tggactacat cgggccttgc aaatacatcc      180
ccccttgctt ggactctgag ctgaccgaat tccccctgct catgcgggac tggctcaaga      240
acgtcctggg caccctgtat gagagggatg aggacaacaa ccttctgact gagaagcana      300
agctgcgggt gaagaanac catgagaatg anaagcgcct gnaggcanga gaccaccccg      360
tggagctgct ggcccgggac ttcgagaaga actataacat gtacatcttc cctgtacact      420
ggcagttcgg ccagacctcg gccgcgacca cgct                                     454

```

<210> 181
 <211> 102
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(102)
 <223> n = A,T,C or G

```

<400> 181
agcgtggntg cggacgacgc ccacaaagcc attgtatgta gttttanttc agctgcaaan      60
aatacncca gcatccacct tactaaccag catatgcaga ca                               102

```

<210> 182
 <211> 337
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(337)
 <223> n = A,T,C or G

```

<400> 182
tcgagcggtc gcccgggcag gtctgggctg atagcaccgg gcatattttg gaatggatga      60

```

```

ggctctggcac cctgagcagc ccagcgagga cttggtctta gttgagcaat ttggctagga      120
ggatagtatg cagcacggtt ctgagtcctgt gggatagctg ccatgaagna acctgaagga      180
ggcgctggct ggtanggggt gattacaggg ctgggaacag ctcgtaact tgcattctc      240
tgcatatact ggntagttag gcgagcctgg cgctcttctt tgcgctgagc taaagctaca      300
tacaatggct ttgnggacct cggccgcgac cacgctt      337

```

<210> 183

<211> 374

<212> DNA

<213> Homo sapien

<400> 183

```

tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt      60
gtagtgcaca ccattgtcat gacaccatct agatgaatca catctgaaat gaccacttcc      120
aaagcctaag cactggcaca acagtttaaa gcctgattca gacattcggt cccactcatc      180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcacccg taggttggtt      240
caagccttcg ttgacagaag ttgccacagg taacaacctc ttcccgaaac ttatgcctct      300
gctggtcttt caagtgcctc cactatgatg ttgtaggtgg cacctctggg gaggacctcg      360
gccgcgacca cgct      374

```

<210> 184

<211> 375

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(375)

<223> n = A,T,C or G

<400> 184

```

agcgtggttt gcggccgagg tcctcaccan aggtgccacc tacaacatca tagtggaggc      60
actgaaagac cagcagaggc ataagggttc ggaagagggt gttaccgtgg gcaactctgt      120
caacgaaggc ttgaaccaac ctacggatga ctcgctgctt gacccctaca cagnttccca      180
ttatgccgtt ggagatgagt gggaacgaat gtctgaatca ggctttaaac tgttggtgcca      240
gtgcttancg tttggaagtg gtcatttcag atgtgattca tctanatggt gtcattgacaa      300
tggtgngaac tacaagattg gagagaagtg gnaccgtcag ggganaaaat ggacctgccc      360
ggcggcncg ctgca      375

```

<210> 185

<211> 148

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(148)

<223> n = A,T,C or G

<400> 185

```

agcgtggctg cggccgaggt ctggcttctt gctcangtga ttatcctgaa ccatccaggc      60
caaataagcg ccggtatgc cctgnattg gattgccaca cggctcacat tgcattgcaag      120
tttgctgagc tgaaggaaaa gattgatc      148

```

<210> 186

<211> 397
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(397)
 <223> n = A,T,C or G

<400> 186

tgcgagcggcc	gcccgggag	gtccaattga	aacaaacagt	tctgagaccg	ttcttcacc	60
actgattaag	agtgggngg	cgggtattag	ggataatatt	catttagcct	tctgagcttt	120
ctgggcagac	ttggtgacct	tgccagctcc	agcagccttc	tgggtccactg	ctttgatgac	180
acccaccgca	actgtctgtc	tcatatcacg	aacagcaaag	cgacccaaag	gtggatagtc	240
tgagaagctc	tcaacacaca	tgggcttgcc	aggaaccata	tcaacaatgg	gcagcatcac	300
cagacttcaa	gaatttaagg	gccatcttcc	agctttttac	cagaacggcg	atcaatcttt	360
tccttcagct	cagcaaactt	gcatgcaatg	tgagccg			397

<210> 187
 <211> 584
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(584)
 <223> n = A,T,C or G

<400> 187

tgcgagcggcc	gcccgggag	gtccagaggg	ctgtgctgaa	gtttgctgct	gccactggag	60
ccactccaat	tgttgccgc	ttcaactctg	gaaccttcac	taaccagatc	caggcagcct	120
tccgggagcc	acggcttctt	gtggntactg	accccagggc	tgaccaccag	cctctcacgg	180
aggcatctta	tgttaacct	cctaccattg	cgctgtgtaa	cacagattct	cctctgcgct	240
atgtggacat	tgccatccca	tgcaacaaca	agggagctca	ctcagngggg	tttgatgtgg	300
tggatgctgg	ctcgggaagt	tctgcgcgatg	cgtggcacca	tttcccgtga	acacccatgg	360
gangncatgc	ctgatctgga	cttctacaga	gacccatgaag	agattgaaaa	agaagaacag	420
gctgnttgct	ganaaaagcaa	gtgaccaagg	angaaatttc	anggggtgaaa	nggactgctc	480
ccgctcctga	attcaactgct	actcaacctg	angntgcaga	ctggtcttga	aggngnacan	540
gggccctctg	ggcctattta	agcancttcg	gtcgcgaaca	cgnt		584

<210> 188
 <211> 579
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(579)
 <223> n = A,T,C or G

<400> 188

agcgtgngtc	gcgccgag	tgctgaatag	gcacagaggg	cacctgtaca	ccttcagacc	60
agtctgcaac	ctcaggctga	gtagcagtga	actcaggagc	gggagcagtc	cattcaccct	120
gaaattcctc	cttggnact	gccttctcag	cagcagcctg	ctcttctttt	tcaatctctt	180
caggatctct	gtagaagtac	agatcaggca	tgacctccca	tgggtgttca	cgggaaatgg	240

tgccacgcat	gcgcagaact	tcccagagcca	gcatccacca	catcaaacc	actgagtgag	300
ctcccttggt	gttgcatggg	atgggcaatg	tccacatagc	gcagaggaga	atctgtgtta	360
cacagcgcaa	tggtaggtag	gttaacataa	gatgcctccg	cgagaagctg	gtggtcagcc	420
ctggggtcaa	gtaaccacaa	gaagccgtgg	ctcccgggaag	gctgcctgga	tctgggttagt	480
gaagntcca	ggagtgaagc	ggccaacaat	tggagtggct	tcagtggcaa	gcagcaaact	540
tcagcacaag	ccctctggac	ctgcccggcg	gccgctcga			579

<210> 189

<211> 374

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(374)

<223> n = A,T,C or G

<400> 189

tcgagcggcc	gcccgggcag	gtccattttc	tccctgacgg	ncccaattct	ctccaatctt	60
gtagttcaca	ccattgtcat	ggcaccatct	agatgaatca	catctgaaat	gaccacttcc	120
aaagcctaag	cactggcaca	acagtttaaa	gcctgattca	gacattcgtt	cccactcacc	180
tccaacggca	taatgggaaa	ctgtgtaggg	gtcaaagcac	gagtcacccg	taggttggtt	240
caagccttcg	ttgacagagt	tgcccacggg	aacaacctcn	tcccgaacc	ttatgcctct	300
gctgggcttt	cagngcctcc	actatgatgn	tgtagggggg	cacctctggn	gangacctcg	360
gccgcgacca	cgct					374

<210> 190

<211> 373

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(373)

<223> n = A,T,C or G

<400> 190

agcgtggctg	cggccgaggt	cctcaccaga	ggtgccacct	acaacatcat	agtggaggca	60
ctgaaagacc	agcagaggca	taaggctcgg	gaagagggtg	ttaccgtggg	caactctgtc	120
aacgaaggct	tgaaccaacc	tacggatgac	tcgtgctttg	acccctacac	agtttcccat	180
tatgccgttg	gagatgagt	ggaacgaatg	tctgaatcag	gctttaaact	gttgtgccag	240
tgcttanget	ttggaagtgg	gtcatttcag	atgtgattca	tctagatggg	gccatgacaa	300
tggngngaac	tacaagattg	gagagaagt	gnaccgncag	ggagaaaatg	gacctgccc	360
ggcggccgct	cga					373

<210> 191

<211> 354

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(354)

<223> n = A,T,C or G

<400> 191

agcgtgggtcg	cggccgaggt	ccacatcggc	agggctcggag	ccctggccgc	catactcgaa	60
ctggaatcca	tccgtcatgc	tctcgccgaa	ccagacatgc	ctcttgctct	tggggttctt	120
gctgatgtac	cagttcttct	gggccacact	gggctgagtg	gggtacacgc	aggtctcacc	180
agtctccatg	ttgcagaaga	ctttgatggc	atccaggntg	caaccttggt	tgggggtcaat	240
ccagtactct	ccactcttcc	agccagagtg	gcacatcttg	aggtcacggc	aggtgcggnc	300
gggggntttt	gcggtcgccc	tctggncttc	ggntgtntct	natctgctgg	ctca	354

<210> 192

<211> 587

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(587)

<223> n = A,T,C or G

<400> 192

tcgagcggcc	gcccgggag	gtctcgcggt	cgcactgggtg	atgctgggtcc	tgttggtccc	60
cccggccctc	ctggacctcc	tggcccccct	ggctctccca	gcgctgggtt	cgacttcagc	120
ttcttgcccc	agccacctca	agagaaggct	cacgatgggtg	gccgctacta	ccgggctgat	180
gatgccaatg	tggttcgtga	ccgtgacctc	gaggtggaca	ccacctcaa	gagcctgagc	240
cagcagatcg	agaacatccg	gagcccagag	ggcagncgca	agaaccccg	ccgcacctgc	300
cgtgacctca	agatgtgcca	ctctgactgg	aagagtggag	agtactggat	tgaccccaac	360
caagctgcaa	cctggatgcc	atcaaagtct	tctgcaacat	ggagactggg	gagacctgcg	420
tgtaccccac	tcagcccagt	gtggcccaaa	agaactggta	catcagcaag	aaccccaagg	480
acaagaagca	tgtctgggtc	ggcgagaaca	tgaccgatgg	attccagttc	gagtatggcg	540
ggcagggctc	cgaccctgcc	gatggggacc	ttggccgcga	acacgct		587

<210> 193

<211> 98

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(98)

<223> n = A,T,C or G

<400> 193

agcgtgggng	cggccgaggt	ataaatatcc	agnccatctc	ctccctccaç	acgctganag	60
atgaagctgt	ncaaagatct	cagggtggan	aaaacccat			98

<210> 194

<211> 240

<212> DNA

<213> Homo sapien

<400> 194

tcgagcggcc	gcccgggag	gtccttcaga	cttggactgt	gtcacactgc	caggcttcca	60
gggctccaac	ttgcagacgg	cctgttggtg	gacagtctct	gtaatcgcg	aagcaacccat	120
ggaagacctg	ggggaaaaca	ccatgggttt	atccaccctg	agatctttga	acaacttcat	180
ctctcagcgt	gcggagggag	gctctggact	ggatatttct	acctcggccg	cgaccacgct	240

<210> 195
 <211> 400
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(400)
 <223> n = A,T,C or G

<400> 195
 cgagcggggcg accgggcagg tncagactcc aatccanana accatcaagc cagatgtcag 60
 aagctacacc atcacaggtt tacaaccagg cactgactac aaganctacc tgcacacctt 120
 gaatgacaat gctcggagct cccctgtggt catcgacgcc tccactgccca ttgatgcacc 180
 atccaacctg cgtttctctg ccaccacacc caattccttg ctggtatcat ggcagccgcc 240
 acgtgccagg attaccggtg catcatcnag tatganaagc ctgggcctcc tcccagagaa 300
 gnggtccctc ggccccgccc tgntgtccca naggntacta ttactgngcc ngcaaccggc 360
 aaccgatatc nattttgnca ttggccttca acaataatta 400

<210> 196
 <211> 494
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(494)
 <223> n = A,T,C or G

<400> 196
 agcgtgggttc gcggccgang tcctgtcaga gtggcactgg tagaagttcc aggaaccctg 60
 aactgtaagg gttcttcac agngccaaca ggatgacatg aaatgatgta ctcagaagtg 120
 tcctggaatg gggcccatga gatggttgtc tgagagagag cttcttgncc tgtctttttc 180
 cttccaatca ggggctcgct cttctgatta ttcttcaggg caatgacata aattgtatat 240
 tcgggtcccg gntccaggcc agtaatatga ncctctgtga caccagggcg gngccgaggg 300
 accacttctc tgggaggaga cccaggcttc tcatacttga tgatgtaacc ggtaatcctg 360
 gcacgtggcg gctgccatga taccagcaag gaattggggt gtggtggcca ggaaacgcag 420
 gttggatggn gcatcaatgg cagtggaggc cgtcgatgac cacaggggga gctccgacat 480
 tgtcattcaa ggtg 494

<210> 197
 <211> 118
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(118)
 <223> n = A,T,C or G

<400> 197
 agcgtggncg cggccgaggt gcagcgcggt ctgtgccacc ttctgctctc tgcccaacga 60
 taaggagggt ncctgcccc aggagaacat taactntccc cagctcggcc tctgccgg 118

<210> 198

<211> 403
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(403)
 <223> n = A,T,C or G

<400> 198

tcgagcggcc gcccgggcag gttttttttg ctgaaagtgg ntactttatt ggntgggaaa	60
gggagaagct gtggtcagcc caagagggaa tacagagncc cgaaaaaggg gagggcaggt	120
gggctggaac cagacgcagg gccaggcaga aactttctct cctcactgct cagcctggtg	180
gtggctggag ctcanaaatt gggagtgcac caggacacct tcccacagcc attgcggcgg	240
catttcactt ggccaggaca ctggctgtcc acctggcact ggtcccgaca gaagcccgag	300
ctggggaaaag ttaatgttca cctgggggca ggaaccctcc ttatcattgn gcagagagca	360
gaaggtggca cagcccgcgc tgcacctcgg ccgcgaccac gct	403

<210> 199
 <211> 167
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(167)
 <223> n = A,T,C or G

<400> 199

tcgagcggcc gcccgggcag gtccaccata agtcctgata caaccacgga tgagctgtca	60
ggagcaaggt tgatttcttt cattgggtccg gncttctcct tgggggncac ccgcactcga	120
tatccagtga gctgaacatt ggggtggcgc cactgggcgc tcaggct	167

<210> 200
 <211> 252
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(252)
 <223> n = A,T,C or G

<400> 200

tcgagcgggt cgcccgggca ggtccaccac acccaattcc ttgctggtat catggcagcc	60
gccacgtgcc aggattaccg gctacatcat caagtatgag aagcctgggt ctctcccag	120
agaagcggtc cctcggtccc gccctgggtg cacagaggct actattactg gcctggaacc	180
gggaaccgaa tatacaattt atgtcattgn cctgaagaat aatcannaan agcgancccc	240
tgattggaag ga	252

<210> 201
 <211> 91
 <212> DNA
 <213> Homo sapien

<400> 201

```

agcgtggtcg cggccgaggt tgtacaagct tttttttttt tttttttttt tttttttttt      60
tttttttttt tttttttttt tttttttttt t
                                                    91

```

<210> 202

<211> 368

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(368)

<223> n = A,T,C or G

<400> 202

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tcgagcggnc gcccgggcag gtctgccaac accaagattg gccccgcgcg catccacaca      60
gtccgtgtgc ggggaggtaa caagaaatac cgtgccctga ggttgacgt ggggaatttc      120
tcctggggct cagagtgttg tactcgtaaa acaaggatca tcgatgttgt ctacaatgca      180
tctaataacg agctggttcg taccaagacc ctggtgaaga attgcatcgt gctcatcgac      240
agcacaccgt accgacagtg gtacgagtc cactatgcgc tgcccctggg ccgcaagaag      300
ggagccaagc tgactcctga ggaagaagag attttaaaca aaaaacgata taanaaaaaa      360
aaaacaat
                                                    368

```

<210> 203

<211> 340

<212> DNA

<213> Homo sapien

<400> 203

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agcgtggtcg cggccgaggt gaaatggtat tcagcttcct ggcaacttctg gtcagcaacc      60
cagtgttggg caacaaatga tctttgagga acatgggtttt aggcggacca cacogccac      120
aacggccacc ccataaaggc ataggccaag accatacccg ccgaatgtag gacaagaagc      180
tctctctcag acaaccatct catgggcccc attccaggac acttctgagt acatcatttc      240
atgtcctcct gttggcactg atgaagaacc cttacagttc agggttcctg gaacttctac      300
cagtgccact ctgacaggac ctgcccgggc ggccgctcga
                                                    340

```

<210> 204

<211> 341

<212> DNA

<213> Homo sapien

<400> 204

```

tcgagcggcc gcccgggcag gtccgtgtcag agtggcactg gtagaagtgc caggaaccct      60
gaactgtaag ggttcttcat cagtgccaac aggatgacat gaaatgatgt actcagaagt      120
gtccctggaat ggggccccat agatggttgt ctgagagaga gcttcttgct ctacattcgg      180
cgggtatggt cttggcctat gccttatggg ggtggccgtt gtgggcggtg tgggtccgct      240
aaaaccatgt tcctcaaaga tcatttggtg cccaacactg ggttgctgac cagaagtgcc      300
aggaagctga ataccatttc acctcggccg cgaccacgct a
                                                    341

```

<210> 205

<211> 770

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(770)
 <223> n = A,T,C or G

<400> 205

tcgagcggcc	gcccgggcag	gtctcccttc	ttgcggccca	ggggcagcgc	atagtgggac	60
tcgtaccact	gtcgttacgg	tgtgctgtcg	atgagcacga	tgcaattctt	caccaggggc	120
ttgggtacgaa	ccagctcgtt	attagatgca	ttgtagacaa	catcgatgat	ccttggttta	180
cgagtacaac	actctgagcc	ccaggagaaa	ttccccacgt	ccaacctcag	ggcacgggat	240
ttcttggttac	ctccccgcac	acggactgtg	tggatgcggc	gggggccaag	ctgactcctg	300
aggaagaaga	gatttttaaac	aaaaaacgat	ctaaaaaaat	tcagaagaaa	tatgatgaaa	360
ggaaaaagaa	tgccaaaatc	agcagtctcc	tggaggagca	gttcacagcag	ggcaagcttc	420
ttgctgtcat	cgcttcaagg	ccgggacagt	gtgaccgagc	agatggctat	gtgctagagg	480
gcaaagaagt	ggagttctat	cttaagaaaa	tcaggggccca	gaatgggtng	tcttcaacta	540
atccaaaggg	gagtttcaga	ccagtgcgat	cagcaaaaac	attgatactg	ntggccaaat	600
ttatttggtgc	agggcttgca	cantangan	ggctgggtct	tggggcttgg	attggnacaa	660
gctttggcag	ccttttcttt	ggttttgcca	aaaacctttt	gntgaagang	anacctnggg	720
cggacccctt	aaccgattcc	acnccnggng	gcgttctang	gncccncttg		770

<210> 206
 <211> 810
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(810)
 <223> n = A,T,C or G

<400> 206

agcgtgggtcg	cgggccgaggt	ctgctgcttc	agcgaagggt	ttctggcata	accaatgata	60
aggctgccaa	agactgttcc	aataccagca	ccagaaccag	ccactcctac	tgttgacagca	120
cctgcaccaa	taaatgtggc	agcagtatca	atgtctctgc	tgattgcact	ggtctgaaac	180
tcccttttga	ttagctgaga	cacaccattc	tgggccctga	tttctctaag	atagaactcc	240
aactctttgc	cctctagcac	atagccatct	gctcgggtcac	actgtcccgg	ccttgaagcg	300
atgcacgcaa	gaagcttgcc	ctgctggaac	tgctcctcca	ggagactgct	gatttttgga	360
ttctttttcc	tttcatcata	tttcttctga	atttttttag	atcgtttttt	gtttaaaatc	420
tcttcttcc	caggagtcag	cttggccccc	gccgcatcca	cacagtcctg	gtgcggggag	480
gtaacaagaa	ataccgtgcc	ctgaggttgg	acgtggggaa	tttctcctgg	ggctcagagt	540
ggtgtactcg	taaaacaagg	atcatcgatg	gtgnctacaa	tgcatctaata	aacgagctgg	600
gtcggaccca	aagaacctgg	ngaanaaatg	gatcgntcca	tcgacaggac	accgtaccgg	660
acaggggnac	gantccact	atgcgcttgc	ccctggggccg	caanaaagga	aaactgcccg	720
ggcggccntc	gaaagcccaa	ttntggaaaa	aatccatcac	actgggnggc	cngtcgagca	780
tgcatntana	ggggcccat	ccccctnann				810

<210> 207
 <211> 257
 <212> DNA
 <213> Homo sapien

<400> 207

tcgagcggcc	gcccgggcag	gtccccaacc	aaggctgcaa	cctggatgcc	atcaaagtct	60
tctgcaacat	ggagactggt	gagacctgcg	tgtacccccc	tcagcccagt	gtggcccaga	120
agaactggta	catcagcaag	aacccccagg	acaagaggca	tgtctggttc	ggcgagagca	180
tgaccgatgg	attccagttc	gagtatggcg	gccagggctc	cgaccctgcc	gatgtggacc	240

tcggccgcga ccacgct

257

<210> 208

<211> 257

<212> DNA

<213> Homo sapien

<400> 208

agcgtggtcg	cggccgaggt	ccacatcggc	agggtcggag	ccctggccgc	catactcgaa	60
ctggaatcca	tcggtcatgc	tctcgccgaa	ccagacatgc	ctcttgctct	tggggttctt	120
gctgatgtac	cagttcttct	gggccacact	gggctgagtg	gggtacacgc	aggtctcacc	180
agtctccatg	ttgcagaaga	ctttgatggc	atccaggttg	cagccttggt	tggggacctg	240
cccgggcggc	cgctcga					257

<210> 209

<211> 747

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(747)

<223> n = A,T,C or G

<400> 209

tcgagcggcc	gcccgggcag	gtccaccaca	cccaattcct	tgctggtatc	atggcagccg	60
ccacgtgcca	ggattaccgg	ctacatcatc	aagtatgaga	agcctgggtc	tcctcccaga	120
gaagtgggtc	ctcgccccc	ccctgggtgc	acagaggcta	ctattactgg	cctggaaccg	180
ggaaccgaat	atacaattta	tgtcattgcc	ctgaagaata	atcagaagag	cgagcccctg	240
attggaagga	aaaagacaga	cgagcttccc	caactggtaa	cccttccaca	ccccaatctt	300
catggaccag	agatcttggg	tggtcccttc	acagttcaaa	agaccccttt	cgtaaccac	360
cctgggtatg	acactggaaa	tggtattcag	cttcctggca	cttctgggtc	gcaaccacgt	420
gttgggcaac	aaatgatctt	tgaggaacat	ggnttttaggc	ggaccacacc	gcccacaacg	480
gccaccccc	taaggcatag	gccaagacca	taccgcgcga	atgtaggaca	agaagctntn	540
tntcanacac	catntnatgg	gccccattcc	aggacacttc	tgagtacatc	atztatgnca	600
tctgtggcac	ttgatgaaaa	cccttacagc	tcagggttct	ggaactttta	ccaggcctnt	660
tacaggactn	ggccggacnc	cttaagccna	ttncacctg	gggcgttcta	nggtcccact	720
cgnncaactg	ngaaaatggc	tactgtn				747

<210> 210

<211> 872

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(872)

<223> n = A,T,C or G

<400> 210

agcgtggtcg	cggccgaggt	ccactagagg	tctgtgtgcc	attgcccagg	cagagtctct	60
gcgttacaaa	ctcctaggag	ggcttgctgt	gcggagggcc	tgctatggtg	tgctgcggtt	120
catcatggag	agtggggcca	aaggctgcga	ggttggtgtg	tctgngaaac	tccnaggaca	180
ngagggctaa	attccatgaa	gtttgtggat	ggcctgatga	tccacaatcg	gagaccctgt	240
taactactac	cgtctnaccn	cctgctgtnc	nccccnttt	ctgctnaana	catngggntn	300

ntncttgnc	ntccttgggt	ngaanatnna	atngcctncc	cnttcntanc	netactngnt	360
ccananttgg	ccttttaaana	atccnccctg	ccttnnnac	tgttcanntn	tttnntcgta	420
aaccctatna	nttnnattan	atnntnnnnn	netcaccccc	ctcntcattn	anccnatang	480
ctnnnaantc	cttnanncct	cccncccnnt	ncnctentac	tnantncttc	tnncccatna	540
cnnagctctt	tcntttaana	taatgnngcc	nngetctnca	tntctacnat	ntgnnnaatn	600
ccccncccc	cnancgnntt	tttgacctnn	naacctcctt	tcctcttccc	tncnnaaatt	660
ncnnanttcc	ncnttcennc	ntttcggnnt	ntcccatnct	ttccannnct	tcantctanc	720
ncnctncaac	ttattttcct	ntcatccctt	nttctttaca	nnccccctnn	tctactcnnc	780
mnttncatta	natttgaaac	tnccacnnt	anttnccctn	ctctacnntt	ttattttncg	840
ntcnctctac	ntaatanttt	aatnanttnt	cn			872

<210> 211

<211> 517

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(517)

<223> n = A,T,C or G

<400> 211

tcgagcggcc	gcccgggcag	gtctgccaag	gagaccctgt	tatgctgtgg	ggactggctg	60
gggcatggca	ggcggtctg	gcttcccacc	cttctgttct	gagatggggg	tggtgggcag	120
tatctcatct	ttgggtcca	caatgctcac	gtggtcaggc	aggggcttct	tagggccaat	180
cttaccagtt	gggtcccagg	gcagcatgat	cttcaccttg	atgccagca	cacctgtct	240
gagcaaacag	tggcgcaaaa	gcagtgtcaa	cgtagtaagt	taacagggc	tccgctgtgg	300
atcatcaggc	catccacaaa	cttcatggat	ttagccctct	gtcctcggag	tttcccagac	360
accacaacct	cgcagccttt	ggccccactc	tccatgatga	accgcagcac	accatagcag	420
gccctccgca	caagcaagcc	ctcctaagaa	tttgtaacgc	ananactctg	ctggcaatgg	480
cacacaaacc	tctagtggac	ctcggncgcg	accacgc			517

<210> 212

<211> 695

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(695)

<223> n = A,T,C or G

<400> 212

tcgagcggcc	gcccgggcag	gtctggtcca	ggatagcctg	cgagtcctcc	tactgctact	60
ccagacttga	catcatatga	atcatactgg	ggagaatagt	tctgaggacc	agtagggcat	120
gattcacaga	ttccaggggg	gccaggagaa	ccaggggacc	ctgggtgtcc	tggaatacca	180
gggtcaccat	ttctcccagg	aataccagga	gggcctggat	ctcccttggg	gccttgagggt	240
ccttgaccat	taggagggcg	agtaggagca	gttgagggt	gtgggcaaac	tgcacaacat	300
tctccaaatg	gaatttcttg	gttggggcag	tctaattctt	gatccgtcac	atattatgtc	360
atcgagagga	acggatcctg	agtcacagac	acatatttgg	catggttctg	gcttccagac	420
atctctatcc	gncataggac	tgaccaagat	gggaacatcc	tccttcaaca	agcttntctgt	480
tgtgccaaaa	ataatagtgg	gatgaagcag	accgagaagt	anccagctcc	cctttttgca	540
caaagcntca	tcatgtctaa	atatcagaca	tgagacttct	ttgggcaaaa	aaggagaaaa	600
agaaaaagca	gttcaaagta	nccnccatca	agttggttcc	ttgcccnttc	agcaccgggg	660
ccccgttata	aaacacctng	ggccgggacc	ccctt			695

<210> 213
 <211> 804
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(804)
 <223> n = A,T,C or G

<400> 213

agcgtggtcg	cggccgaggt	gttttatgac	gggcccggtg	ctgaagggca	gggaacaact	60
tgatggtgct	actttgaact	gcttttcttt	tctccttttt	gcacaaagag	tctcatgtct	120
gatattttaga	catgatgagc	tttgtgcaaa	aggggagctg	gctacttctc	gctctgcttc	180
atcccactat	tattttggca	caacaggaag	ctgttgaagg	aggatgttcc	catcttggtc	240
agtcctatgc	ggatagagat	gtctggaagc	cagaaccatg	ccaaatatgt	gtctgtgact	300
caggatccgt	tctctgcgat	gacataatat	gtgacgatca	agaattagac	tgccccaacc	360
cagaaattcc	at ttggagaa	tgttggtgcag	tttgcccaca	gcctccaact	gctcctactc	420
gccctcctaa	tggtcaagga	cctcaaggcc	ccaagggaga	tccaggccct	cctggtattc	480
ctgggagaaa	tggtgaccct	ggtattccag	gacaaccagg	gtcccctggt	tctcctggcc	540
cccttggaat	cngngaatc	atgccctact	ggtcctcaaa	ctattctccc	anatgattca	600
tatgatgtca	agtctgggat	agcnagtang	ganggactcg	caggctattc	tggaccanac	660
ctgccggggg	ggcggttcgaa	agcccgaatc	tgcananntn	cnttcacact	ggcggccgctc	720
gagctgcttt	aaaagggccca	ttccnctttt	agnngggggg	antacaatta	ctnggcggcg	780
ttttanancg	cgngnctggg	aaat				804

<210> 214
 <211> 594
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(594)
 <223> n = A,T,C or G

<400> 214

agcgtggtcg	cggccgaggt	ccacatcggc	agggctcgag	ccctggccgc	catactcgaa	60
ctggaatcca	tcggtcatgc	tctcgccgaa	ccagacatgc	ctcttgctct	tggggttctt	120
gctgatgtac	cagttcttct	gggccacact	gggctgagtg	gggtacacgc	aggtctcacc	180
agtctccatg	ttgcagaaga	ctttgatggc	atccaggttg	cagccttggt	tgggggtcaat	240
ccagtactct	ccactcttcc	agtcagagtg	gcacatcttg	aggtcacggc	aggtgcgggc	300
gggggttctt	cggtgcctct	ctgggctccg	gatgttctcg	atctgctggc	tcaggctctt	360
gaggggtggt	tccacctcga	ggtcacggtc	acgaaccaca	ttggcatcat	cagcccggta	420
gtagcggcca	ccatcggtgag	ccttctcttg	angtggctgg	ggcaggaact	gaagtcgaaa	480
ccagcgctgg	gaggaccagg	gggaccaana	ggtccaggaa	gggcccgggg	gggaccaaca	540
ggaccagcat	caccaagtgc	gacccgcgag	aacctgcccc	gccgnccgct	cgaa	594

<210> 215
 <211> 590
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(590)
 <223> n = A,T,C or G

<400> 215

tgcagcggnnc	gcccggggcag	gtctcgcggt	cgcaactgggtg	atgctgggtcc	tggttggtccc	60
cccggccctc	ctggacctcc	tggtccccct	ggctctccca	gcgctgggtt	cgacttcagc	120
ttcctgcccc	agccacctca	agagaaggct	cacgatgggtg	gccgctacta	ccgggctgat	180
gatgccaatg	tggttcgtga	ccgtgacctc	gaggtggaca	ccacctcaa	gagcctgagc	240
cagcagatcg	agaacatccg	gagcccagag	ggcagccgca	agaaccccg	ccgcacctgc	300
cgtgacctca	agatgtgcca	ctctgactgg	aagagtggag	agtaactggat	tgaccccaac	360
caaggctgca	acctggatgc	catcaaagtc	ttctgcaaca	tgagactggg	tgagacctgc	420
gtgtacccca	ctcagcccag	tgtggcccag	aagaactggg	acatcagcaa	gaaccccaag	480
gacaagaggc	atgtctgggt	cggcgagagc	atgaccgatg	gattccagtt	cgagtatggc	540
ggccagggct	cccacctgc	cgatgtggac	ctccggccgc	gaccacctt		590

<210> 216
 <211> 801
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(801)
 <223> n = A,T,C or G

<400> 216

tngagcgggc	gcccggggcag	gntgnnaacg	ctggctctgc	tggtcctcct	ggcaaggctg	60
gtgaagatgg	tcaccctgga	aaacccggac	gacctggtga	gagaggagtt	gttggaccac	120
agggtgctcg	tggtttccct	ggaactcctg	gacttcctgg	cttcaaaggc	attaggggac	180
acaatggctc	ggatggattg	aagggacagc	ccggtgctcc	tggtgtgaag	ggtgaacctg	240
gtgcccctgg	tgaaaatgga	actccaggtc	aaacaggagc	ccgtgggctt	cctggtgaga	300
gaggaccgtg	ttggtgcccc	tgcccanac	ctcgcccgcg	accacgctaa	gcccgaattt	360
ccagcacact	ggnggccgtt	actantggat	ccgagctcgg	taccaagctt	ggcgtaatca	420
tggtcatagc	tgtttcctgn	gtgaaattgt	tatccgctca	caatttcaca	cancatacga	480
agccggaaaag	cataaagtgt	aaagccttgg	ggtgctaattg	agtgaagctaa	ctcncattaa	540
attgcgttgc	gtcactgcc	cgcttttcca	nnngggaaac	cntggcntng	ccngcttgcn	600
ttaantgaaa	tccgccnacc	cccggggaaa	agnccggttg	cngtattggg	gcnccttttc	660
cctttcctcg	gnttacttga	nttantgggc	tttggncgnt	tcggggttng	gcganenggt	720
tcaacntcac	nccaaaggng	gnaanacggt	tttcccanaa	tccgggggnt	ancccaangn	780
aaaacatnng	ncnaangggc	t				801

<210> 217
 <211> 349
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(349)
 <223> n = A,T,C or G

<400> 217

agcgtggtn	gcggccgagg	tctgggccag	gggcaccaac	acgtcctctc	tcaccaggaa	60
gcccacgggc	tcctgtttga	cctggagttc	cattttcacc	aggggcacca	ggttcacctt	120

tcacaccagg	agcaccgggc	tgtcccttca	atccatncag	accattgtgn	cccctaattgc	180
ctttgaagcc	aggaagtcca	ggagttccag	ggaaaccacc	gagcaccctg	tggccaaca	240
actcctctct	caccaggctc	tccgggtttt	ccagggtgac	catcttcacc	agccttgcca	300
ggaggaccag	caggaccagc	gttaccaacc	tgcccgggcg	gccgctcga		349

<210> 218

<211> 372

<212> DNA

<213> Homo sapien

<400> 218

tcgagcggcc	gcccgggcag	gtccattttc	tccctgacgg	tcccacttct	ctccaatctt	60
gtagttcaca	ccattgtcat	ggcaccatct	agatgaatca	catctgaaat	gaccacttcc	120
aaagcctaag	cactggcaca	acagtttaaa	gcctgattca	gacattcggt	cccactcatc	180
tccaacggca	taatgggaaa	ctgtgtaggg	gtcaaagcac	gagtcattcc	taggttggtt	240
caagccttcg	ttgacagagt	tgcccacggg	gacaacctct	tcccgaacct	tatgcctctg	300
ctggctcttc	agtgcctcca	ctatgatgtt	gtaggtggca	cctctggtga	ggacctcggc	360
cgcgaccacg	ct					372

<210> 219

<211> 374

<212> DNA

<213> Homo sapien

<400> 219

agcgtggtcg	cggccgaggt	cctcaccaga	ggtgccacct	acaacatcat	agtggaggca	60
ctgaaagacc	agcagaggca	taaggttcgg	gaagaggttg	ttaccgtggg	caactctgtc	120
aacgaaggct	tgaaccaacc	tacggatgac	tcgtgctttg	accctacac	agtttcccat	180
tatgccgttg	gagatgagt	ggaacgaatg	tctgaatcag	gctttaaact	gttgtgccag	240
tgcttaggct	ttggaagtgg	tcatttcaag	atgtgattca	tctagatggg	gccatgacaa	300
tggtgtgaac	tacaagattg	gagagaagtg	ggaccgtcag	ggagaaaatg	gacctgcccc	360
ggccggccgc	tcga					374

<210> 220

<211> 828

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(828)

<223> n = A,T,C or G

<400> 220

tcgagcgnn	gcccgggcag	gtccagtagt	gccttcggga	ctgggttcac	ccccaggtct	60
gcggcagttg	tcacagcgcc	agccccgctg	gcctccaaag	catgtgcagg	agcaaattgg	120
accgagatat	tccttctgcc	actgttctcc	tacgtgggat	gtcttcccat	catcgtaaca	180
cgttgcctca	tgagggtcac	acttgaattc	tccttttccg	ttcccaagac	atgtgcagct	240
catttggtctg	gctctatagt	ttggggaaa	ttgtgtgaaa	ctgtgccact	gacctttact	300
tcctccttct	ctactggagc	tttcgtacct	tccacttctg	ctgttggtaa	aatggtggat	360
cttctatcaa	tttcattgac	agtaccact	tctcccaaac	atccagggaa	atagtgtatt	420
cagagcgatt	aggagaacca	aattatgggg	cagaaataag	gggcttttcc	acaggttttc	480
ctttggagga	agatttcagt	ggtgacttta	aaagaatact	caacagtgtc	ttcatcccca	540
tagcaaaa	agaaacngta	aatgatggaa	ngcttctgga	gatgccnnca	tttaaggggac	600
nccagaaact	tcaccatcta	caggacctac	ttcagtttac	annaagnca	atantctgac	660

tcanaaaagga	cccaagtagc	nccatggnc	gcacttttag	cctttcccct	ggggaaaann	720
ttacntttctt	aaancctngg	ccngacccc	cttaagncca	aattntggaa	aanttcctn	780
cnnctggggg	gcngttcnac	atgcntttna	agggcccaat	tncccnt		828

<210> 221

<211> 476

<212> DNA

<213> Homo sapien

<400> 221

tcgagcggcc	gcccgggcag	gtgtcggagt	ccagcacggg	aggcgtgggc	ttgtagttgt	60
tctccggctg	cccattgctc	tcccactcca	cggcgatgtc	gctgggatag	aagcctttga	120
ccaggcaggt	caggctgacc	tggttcttgg	tcattctctc	ccgggatggg	ggcagggtgt	180
acacctgtgg	ttctcggggc	tgcccttggg	ctttggagat	ggttttctcg	atgggggctg	240
ggagggcttt	gttgagagacc	ttgcacttgt	actccttgcc	attcagccag	tcctgggtgca	300
ggacgggtgag	gacgctgacc	acacgggtacg	tgctgttgta	ctgctcctcc	cgcggctttg	360
tcttggcatt	atgcacctcc	acgccgtcca	cgtaccagtt	gaacttgacc	tcagggtctt	420
cgtggctcac	gtccaccacc	acgcatgtaa	cctcagacct	cggccgcgac	cacgct	476

<210> 222

<211> 477

<212> DNA

<213> Homo sapien

<400> 222

agcgtggctg	cggccgaggt	ctgaggttac	atgcgtgggtg	gtggacgtga	gccacgaaga	60
ccctgaggtc	aagttcaact	ggtacgtgga	cggcgtagag	gtgcataatg	ccaagacaaa	120
gcccggggag	gagcagtaca	acagcacgta	ccgtgtgggtc	agcgtcctca	ccgtcctgca	180
ccaggactgg	ctgaatggca	aggagtacaa	gtgcaagggtc	tccaacaaag	ccctcccagc	240
ccccatcgag	aaaaccatct	ccaaagccaa	agggcaagcc	ccgagaacca	caggtgtaca	300
ccctgcccc	atcccgagg	gagatgacca	agaaccaggt	cagcctgacc	tgctgtgtca	360
aaggcttcta	tcccagcgac	atcgccgtgg	agtgggagag	caatgggcag	ccggagaaca	420
actacaagac	cacgcctccc	gtgctggact	ccgacacctg	cccgggcggc	cgctcga	477

<210> 223

<211> 361

<212> DNA

<213> Homo sapien

<400> 223

tcgagcggcc	gcccgggcag	gttgaatggc	tctcgtctga	ccaccccggt	gctgggtggg	60
ggtacagagc	tccgatgggt	gaaaccattg	acatagagac	tgtccctgtc	caggggtgtg	120
gggcccagct	cagtgatgcc	gtgggtcagc	tggtctagct	tccagtacag	ccgctctctg	180
tccagtccag	ggcttttggg	gtcaggacga	tggtgtcaga	cagcatccac	tctgggtggct	240
gccccatcct	tctcaggcct	gagcaagggtc	agtctgcaac	cagagtacag	agagctgaca	300
ctgggtgttct	tgaacaaggg	cataagcaga	ccctgaagga	cacctcggcc	gcgaccacgc	360
t						361

<210> 224

<211> 361

<212> DNA

<213> Homo sapien

<400> 224

agcgtggctg	cggccgaggt	gtccttcagg	gtctgtttat	gcccttggtc	aagaacacca	60
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gtgtcagctc tctgtactct ggttgacagac tgaccttgct caggcctgag aaggatgggg 120
cagccaccag agtggatgct gtctgcaccc atcgctcctga ccccaaaagc cctggactgg 180
acagagagcg gctgtactgg aagctgagcc agctgaccca cggcatcact gagctgggcc 240
cctacaccct ggacagggac agtctctatg tcaatggttt caccatcgg agctctgtac 300
ccaccaccag caccgggggtg gtcagcgagg agccattcaa cctgcccggg cggccgctcg 360
a 361

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```

<210> 225
<211> 766
<212> DNA
<213> Homo sapien

```

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<220>
<221> misc_feature
<222> (1)...(766)
<223> n = A,T,C or G

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<400> 225
agcgtgggtcg cggccgaggt cctgtcagag tggcactggt agaagttcca ggaaccctga 60
actgtaaggg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagtgt 120
cctggaatgg ggcccatgag atggttgtct gagagagagc ttcttgcct acattcggcg 180
ggtatggtct tggcctatgc cttatggggg tggccgttgt gggcgggtgtg gtccgcctaa 240
aaccatgttc ctcaaagatc atttgttgcc caacactggg ttgctgacca gaagtgccag 300
gaagctgaat accatttcca gtgtcatacc cagggtgggt gacgaaaggg gtcttttgaa 360
ctgtggaagg aacatccaag atctctggtc catgaagatt ggggtgtgga agggttacca 420
gttggggaag ctgctctgtc tttttccttc caatcagggg ctgctctctc tgattattct 480
tcagggaat gacataaatt gtatatctcg tcccgttcc aggccagtaa tagtagcctc 540
tgtgacacca gggcgggggc gagggaccct tctnttgaa gagaccagct tctcatactt 600
gatgatgagn ccggtaatcc tggcacgtgg nggttgcatt atnccaccaa ggaaatnggn 660
ggggngggac ctgcccggcg gccgttcnaa agcccaattc cacacacttg gnggcgtac 720
tatggatccc actcngtcca acttgngnga atatggcata actttt 766

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<210> 226
<211> 364
<212> DNA
<213> Homo sapien

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<400> 226
tcgagcggcc gcccgggcag gtccttgacc ttttcagcaa gtgggaaggt gtaatccgtc 60
tccacagaca aggccaggac tcgtttgtac ccgttgatga tagaatgggg tactgatgca 120
acagttgggt agccaatctg cagacagaca ctggcaacat tgcggacacc ctccaggaag 180
cgagaatgca gagtttcttc tgtgatatca agcacttcag ggtttagat gctgccattg 240
tcgaacacct gctggatgac cagcccaaag gagaaggggg agatgttgag catgttcagc 300
agcgtggctt cgctggctcc cactttgtct ccagtcttga tcagacctcg gccgcgacca 360
cgct 364

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<210> 227
<211> 275
<212> DNA
<213> Homo sapien

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<400> 227
agcgtgggtcg cggccgaggt ctgtcctaca gtccctcagga ctctactccc tcagcagcgt 60
ggtgaccgtg ccctccagca acttcggcac ccagacctac acctgcaacg tagatcacia 120
gccagcaac accaaggtgg acaagagagt tgagcccaaa tcttgtgaca aaactcacac 180

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atgccaccg tgcccagcac ctgaactcct ggggggaccg tcagtcttcc tcttcccccg 240
catccccctt ccaaacctgc ccgggcggcc gctcg 275

<210> 228

<211> 275

<212> DNA

<213> Homo sapien

<400> 228

cgagcggccg cccgggcagg tttggaagg ggatgcgggg gaagaggaag actgacggtc 60
ccccaggag ttcagggtgct gggcacggtg ggcattgtgt agttttgtca caagatttgg 120
gtccaactct cttgtccacc ttggtgttgc tgggcttgtg atctacgttg cagggtgtagg 180
tctgggtgcc gaagttgctg gagggcacgg tcaccacgct gctgaggag tagagtcctg 240
aggactgtag gacagacctc ggccgcgacc acgct 275

<210> 229

<211> 40

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(40)

<223> n = A,T,C or G

<400> 229

nggnnggtcc ggnncngncag gaccactcnt cttcgaaata 40

<210> 230

<211> 208

<212> DNA

<213> Homo sapien

<400> 230

agcgtggctg cggccgaggt cctcacttgc ctccctgcaaa gcaccgatag ctgcgctctg 60
gaagcgcaga tctgttttaa agtcctgagc aatttctcgc accagacgct ggaaggaag 120
tttgccaatc agaagttcag tggacttctg ataacgtcta atttcacgga gcgccacagt 180
accaggacct gcccgggcgg ccgctcga 208

<210> 231

<211> 208

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(208)

<223> n = A,T,C or G

<400> 231

tcgagcggcc gcccgggcag gtccctggtac tgnggcgctc cgtgaaatta gacgttatca 60
gaagtccact gaacttctga ttcgcaaact tcccttccag cgtctggtgc gagaaattgc 120
tcaggacttt aaaacagatc tgcgcttcca gagcgcagct atcggtgctt tgcaggaggc 180
aagtgaggac ctcggccgcg accacgct 208

<210> 232
<211> 332
<212> DNA
<213> Homo sapien

<400> 232
tcgagcggcc gcccgggcag gtccacatcg gcagggtcgg agccctggcc gccatactcg 60
aactggaatc catcggtcat gctctcgccg aaccagacat gcctcttgtc cttgggggttc 120
ttgctgatgt accagttctt ctgggccaca ctgggctgag tggggtacac gcagggtctca 180
ccagtctcca tgttgacagaa gactttgatg gcatccaggt tgcagccttg gttgggggtca 240
atccagtaact ctccactctt ccagtcagag tggcacatct tgaggtcacg gcagggtcggg 300
gcgggggttct tgacctcggc cgcgaccacg ct 332

<210> 233
<211> 415
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(415)
<223> n = A,T,C or G

<400> 233
gtgggnttga acccnttttna nctccgcttg gtaccgagct cggatccact agtaacggcc 60
gccagtgtgc tgggaattcgg cttagcgtgg tcgcggccga ggtcaagaac cccgcccgcga 120
cctgccgtga cctcaagatg tgccactctg actggaagag tggagagtac tggattgacc 180
ccaaccaagg ctgcaacctg gatgccatca aagtcttctg caacatggag actggtgaga 240
cctgccgtgta cccactcag ccagtggtgg ccagaagaa ctggtacatc agcaagaacc 300
ccaaggacaa gaggcagtgc tggttcggcg agagcatgac cgatggattc cagttcagat 360
atggcgccca gggctccgac cctgccgatg tggacctgcc cggcgggccg ctcga 415

<210> 234
<211> 776
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(776)
<223> n = A,T,C or G

<400> 234
agcgtggctg cggccgaggt ctgggatgct cctgctgtca cagtgaagata ttacaggatc 60
acttacggag aaacaggagg aaatagccct gtccaggagt tcaactgtgc tgggagcaag 120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct 180
gtcactggcc gtggagacag ccccgaagc agcaagccaa tttccattaa ttaccgaaca 240
gaaattgaca aaccatccca gatgcaagtg accgatgttc aggacaacag cattagtgtc 300
aagtggctgc cttcaagttc ccctgttact ggttacagag taaccaccac tccccaaaaat 360
ggaccaggac caacaaaaac taaaactgca ggtccagatc aaacagaaat gactattgaa 420
ggcttgacgc ccacagtggg gtatgtggtt aagtgtctat gtcagaatc caagcggaga 480
gaagtacgcc tctggttcag actgnaagta accaacattg atcgcctaaa ggactggcat 540
tcaactgatgn ggatgccgat tccatcaaaa ttgnttggga aaaccacag gggcaagttt 600
ncangtcnag gnggacctac tcgagccctg aggatggaat ccttgactnt tccttnnctt 660
gatggggaaa aaaaaccttn aaaacttgaa ggacctgccc gggcgggcgt ncaaaaccca 720

attccacccc cttgggggcg ttctatgggn ccactcgga ccaaacttgg ggtaan 776

<210> 235
 <211> 805
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(805)
 <223> n = A,T,C or G

<400> 235
 tcgagcggcc gcccgggcag gtccttgacg ctctgcagtg tcttcttcac catcaggtgc 60
 aggggaatagc tcatggattc catcctcagg gctcgagtag gtcaccctgt acctggaaac 120
 ttgcccctgt gggctttccc aagcaatttt gatggaatcg gcatccacat cagtgaatgc 180
 cagtccttta gggcgatcaa tgttggttac tgcagctcga accagaggct gactctctcc 240
 gcttgatttc tgagcataga cactaaccac atactccact gtgggctgca agccttcaat 300
 agtcatttct gtttgatctg gacctgcagt tttagttttt gttggctcctg gtccattttt 360
 gggagtgggtg gttactctgt aaccagtaac aggggaactt gaaggcagcc acttgacact 420
 aatgctgttg tcctgaacat cggtcacttg catctgggat ggtttgtcaa tttctgttcg 480
 gtaattaatg gaaattggct tgctgcttgc ggggcttgtc tccacggcca gtgacagcat 540
 acacagtgat ggtataatca actccagggt taagccgctg atggtagctg aaactttgct 600
 ccaggcacaa gtgaactcct gacagggcta tttcctnctg ttctccgtaa gtgatcctgt 660
 aatatctcac tgggacagca ggangcattc caaaacttcg ggcgngaccc cctaagccga 720
 attntgcaat atncatcaca ctggcgggcg ctcgancatt cattaaaagg cccaatcncc 780
 cctataggga gtntantaca attng 805

<210> 236
 <211> 262
 <212> DNA
 <213> Homo sapien

<400> 236
 tcgagcggcc gcccgggcag gtcacttttg gtttttggct atgttcggtt ggtcaaagat 60
 aaaaactaag tttgagagat gaatgcaaag gaaaaaata ttttccaaag tccatgtgaa 120
 attgtctccc atttttttgg cttttgaggg ggttcagttt ggggtgcttg tctgtttccg 180
 ggttgggggg aaagtgtggt ggggtggagg gagccaggtt gggatggagg gagtttacag 240
 gaagcagaca gggccaacgt cg 262

<210> 237
 <211> 372
 <212> DNA
 <213> Homo sapien

<400> 237
 agcgtggtcg cggccgaggt cctcaccaga ggtgccacct acaacatcat agtggaggca 60
 ctgaaagacc agcagaggca taaggttcgg gaagaggttg ttaccgtggg caactctgtc 120
 aacgaaggct tgaaccaacc tacggatgac tcgtgctttg acccctacac agtttcccat 180
 tatgccgttg gagatgagtg ggaacgaatg tctgaatcag gctttaaact gttgtgccag 240
 tgcttaggct ttggaagtgg tcatttcaga tgtgattcat ctagatgggt ccatgacaat 300
 ggtgtgaact acaagattgg agagaagtgg gaccgtcagg gagaaaatgg acctgcccgg 360
 gcggccgctc ga 372

<210> 238

<211> 372
 <212> DNA
 <213> Homo sapien

<400> 238
 tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt 60
 gtagttcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc 120
 aaagcctaag cactggcaca acagttttaa gcctgattca gacattcgtt cccactcatc 180
 tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcacccg taggttggtt 240
 caagccttcg ttgacagagt tgcccacggg aacaacctct tcccgaacct tatgcctctg 300
 ctggtctttc agtgccctca ctatgatgtt gtaggtggca cctctggtga ggacctcggc 360
 cgcgaccacg ct 372

<210> 239
 <211> 720
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(720)
 <223> n = A,T,C or G

<400> 239
 tcgagcggcc gcccgggcag gtccaccata agtcctgata caaccacgga tgagctgtca 60
 ggagcaaggt tgatttcttt catttggtccg gtcttctcct tgggggtcac ccgcactcga 120
 tatccagtga gctgaacatt ggggtggtgct cactgggcgc tcaggcttgt ggggtgtgacc 180
 tgagtgaact tcaggtcagt tgggtgcagga atagtgggta ctgcagtctg aaccagaggc 240
 tgactctctc cgcttgatt ctgagcatag acactaacca catactccac tgtgggctgc 300
 aagccttcaa tagtcatttc tgtttgatct ggacctgcag ttttagtttt tgttggtcct 360
 ggtccatttt tgggagtggg ggttactctg taaccagtaa caggggaact tgaaggcagc 420
 cacttgacac taatgctgtt gtccctgaaca tcggtcactt gcatctggga tggtttgnca 480
 atttctgttc ggtaattaat ggaaattggc ttgctgcttg cggggctgtc tccacggcca 540
 gtgacagcat acacagngat ggnatnatca actccaagtt taaggccctg atggtaactt 600
 taaacttgct ccagccagn gaacttcggg acagggtatt tcttctggtt ttccgaaagn 660
 gancctggaa tnntctcctt ggancagaag gancntccaa aacttggggc ggaaccctt 720

<210> 240
 <211> 691
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(691)
 <223> n = A,T,C or G

<400> 240
 agcgtggctc cggccgaggt cctgtcagag tggcactggg agaagttcca ggaaccctga 60
 actgtaaggg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagtgt 120
 cctggaatgg ggcccatgag atggttgtct gagagagagc ttcttgtcct acattcggcg 180
 ggtatgggtc tggcctatgc cttatggggg tggcgttgtt gggcggtgtg gtcgcctaa 240
 aaccatgttc ctcaaagatc atttgttgcc caacactggg ttgctgacca gaagtgccag 300
 gaagctgaat accatttcca gtgtcatacc cagggtgggt gacgaaaggg gtcttttgaa 360
 ctgtggaagg aacatccaag atctctggtc catgaagatt ggggtgtgga agggttacca 420


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gttggggaag ctcgtctgtc tttttccttc caatcagggg ctcgctcttc tgattattct 480
tcagggaat gacataaatt gtatatcgg ttcccggttc caggccagta atagtagcct 540
cttgtgacac caggcggggc ccanggacca cttctctggg angagacca gcttctcata 600
cttgatgatg taacccggtg atcctgcacg tggcggtgn catgatacca ncaaggaatt 660
gggtgngng gacctgccc ggcgcctcn a 691

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<210> 241
<211> 808
<212> DNA
<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(808)
<223> n = A,T,C or G

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```

<400> 241
agcgtggtcg cggccgaggt ctgggatgct cctgctgtca cagtgagata ttacaggatc 60
acttacggag aaacaggagg aaatagccct gtccaggagt tcaactgtgcc tgggagcaag 120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct 180
gtcactggcc gtggagacag ccccgcaagc agcaagccaa tttccattaa ttaccgaaca 240
gaaattgaca aaccatccca gatgcaagt accgatgttc aggacaacag cattagtgtc 300
aagtggctgc cttcaagttc ccctgttact ggttacagag taaccaccac tcccataaat 360
ggaccaggac caacaaaaac taaaactgca ggtccagatc aaacagaaat gactattgaa 420
ggcttgacgc ccacagtgga gtatgtggtt agtgtctatg ctcaaatcc aagcggagag 480
agtcagcctc tgggttcagac tgcagtaacc actattcctg caccaactga cctgaagttc 540
actcaggtca caccacaag cctgagccgc cagtggacac caccaatgt tcaactactg 600
gatatcgagt gcgggtgacc cccaaggaga agaccggac ccatgaaaga aatcaacctt 660
gtcctgaca gtcctccgn gggtgtatca ggacttatgg gggactgcc cggcnggccg 720
ntcgaaancg aattntgaaa tttccttcnc actggnggc gnttcgagct tncctntana 780
nggcccaatt cncctntagn gggtcgtn 808

```

```

<210> 242
<211> 26
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(26)
<223> n = A,T,C or G

```

```

<400> 242
agcgtggtcg cggccgaggt cnagga 26

```

```

<210> 243
<211> 697
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(697)
<223> n = A,T,C or G

```

<400> 243

tgcgagcggcc	gcccgggag	gtccaccaca	cccaattcct	tgctgggtatc	atggcagccg	60
ccacgtgcc	ggattaccgg	ctacatcatc	aagtatgaga	agcctgggtc	tcctcccaga	120
gaagtgggtcc	ctcggccccg	ccctgggtgtc	acagaggcta	ctattactgg	cctggaaccg	180
ggaaccgaat	atacaattta	tgctattgcc	ctgaagaata	atcagaagag	cgagcccctg	240
attggaagga	aaaagacaga	cgagcttccc	caactggtaa	cccttcacac	ccccaatctt	300
catggaccag	agatcttgga	tggtccttcc	acagttcaaa	agaccccttt	cgtcacccac	360
cctgggtatg	acactggaaa	tggtattcag	cttcctggca	cttctggtca	gcaaccaggt	420
gttgggcaac	aaatgatctt	tgaggaacat	ggtttttaggc	ggaccacacc	gcccacaacg	480
ggcaccacca	taaggnatag	gccaagacca	taccccgccg	aatgtaggac	aagaagctct	540
ntctcaacaa	ccatctcatg	ggccccattc	caggacactt	ctgagtacat	catttcatgt	600
catcctggtg	ggcacttgat	gaanaaccct	tacagttcag	ggttcctgga	acttctacca	660
gngccacttc	tgacagganc	ttgggcgnga	ccaccct			697

<210> 244

<211> 373

<212> DNA

<213> Homo sapien

<400> 244

agcgtgggtcg	cggccgaggt	ccattttctc	cctgacggtc	ccacttctct	ccaatcttgt	60
agttcacacc	attgtcatgg	caccatctag	atgaatcaca	tctgaaatga	ccacttccaa	120
agcctaagca	ctggcaccaac	agtttaaagc	ctgattcaga	cattcgttcc	cactcatctc	180
caacggcata	atgggaaact	gtgtagggggt	caaagcacga	gtcatccgta	ggttgggttca	240
agccttcgtt	gacagagttg	cccacggtaa	caacctcttc	ccgaacctta	tgccctctgct	300
ggtctttcag	tgccctccact	atgatgttgt	aggtggcacc	tctggtgagg	acctgcccgg	360
gcggccccgct	cga					373

<210> 245

<211> 307

<212> DNA

<213> Homo sapien

<400> 245

agcgtgggtcg	cggccgaggt	gtgccccaga	ccaggaattc	ggcttcgacg	ttggccctgt	60
ctgcttctctg	taaactccct	ccatcccaac	ctggctccct	cccacccaac	caactttccc	120
cccaaccggg	aaacagacaa	gcaacccaaa	ctgaaccccc	tcaaaagcca	aaaaaatggg	180
agacaatttc	acatggactt	tggaaaatat	ttttttcctt	tgcatcctac	tctcaaaactt	240
agttttttatc	tttgaccaac	cgaacatgac	caaaaaccaa	aagtgacctg	cccgggcggc	300
cgctcga						307

<210> 246

<211> 372

<212> DNA

<213> Homo sapien

<400> 246

tgcgagcggcc	gcccgggag	gtcctcacca	gaggtgccac	ctacaacatc	atagtggagg	60
cactgaaaga	ccagcagagg	cataagggtc	gggaagagg	tgttaccgtg	ggcaactctg	120
tcaacgaagg	cttgaacca	cctacggatg	actcgtgctt	tgaccctac	acagtttccc	180
attatgccgt	tggagatgag	tgggaacgaa	tgtctgaatc	aggctttaaa	ctgttgtgcc	240
agtgccttagg	ctttggaagt	ggtcatttca	gatgtgattc	atctagatgg	tgccatgaca	300
atggtgtgaa	ctacaagatt	ggagagaagt	gggaccgtca	gggagaaaat	ggacctcggc	360
cgcgaccacg	ct					372

<210> 247
 <211> 348
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(348)
 <223> n = A,T,C or G

<400> 247
 tcgagcggcc gcccgggcag gtaccggggt ggtcagcgag gagccattca cactgaactt 60
 caccatcaac aacctgcggt atgaggagaa catgcagcac cctgggtcca ggaagttcaa 120
 caccacggag agggtccttc agggcctgct cagggtccctg ttcaagagca ccagtgttgg 180
 ccctctgtac tctgggtgca gactgacttt gctcagacct gagaaacatg gggcagccac 240
 tggagtggac gccatctgca ccctccgctt tgatccact ggtnctggac tggacanana 300
 gcggctatac ttgggagctg anccnaacct ttggcgngga cncnctt 348

<210> 248
 <211> 304
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(304)
 <223> n = A,T,C or G

<400> 248
 gaggactggc tcagctccca gtatagccgc tctctgtcca gtccaggacc agtgggatca 60
 aggcggaggg tgcagatggc gtccactcca gtgggtgccc catgtttctc aagtctgagc 120
 aaagncagtc tgcagccaga gtacagaggg ccaacactgg tgctcttgaa cagggacctg 180
 agcaggccct gaaggaccct ctccgtgggt ttgaacttcc tggagccagg gtgctgcatg 240
 ttctcctcat accgcaggtt gttgatgggt aagttcagtg tgaatggctc ctgctgacc 300
 aacc 304

<210> 249
 <211> 400
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(400)
 <223> n = A,T,C or G

<400> 249
 agcgtggctg cggccgaggt ccaccacacc caattccttg ctggtatcat ggcagccgcc 60
 acgtgccagg attaccggct acatcatcaa gtatgagaag cctgggtctc ctcccagaga 120
 agtggctccct cggccccgcc ctgggtgtcac agaggctact attactggcc tggaaaccggg 180
 aaccgaatat acaatttatg tcattgccct gaagaataat cagaagagcg agccccctgat 240
 tggaaaggaaa aagacagacg agcttcccca actggtaacc cttccacacc ccaatcttca 300
 tggaccanan ancttggatn gtcctttcac nggttnaaaa aacccttttc gccccccac 360
 cttgggggatt aaccttggga aanggggatt tnacncttc 400

<210> 250
 <211> 400
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(400)
 <223> n = A,T,C or G

<400> 250
 tcgagcggcc gcccgggcag gtcctgtcag agtggcactg gtagaagttc caggaaccct 60
 gaactgtaag ggttcttcat cagtgccaac aggatgacat gaaatgatgt actcagaagt 120
 gtcctggaat ggggcccatg agatggttgt ctgagagaga gcttcttgtc ctacattcgg 180
 cgggtatggg cttggcctat gccttatggg ggtggccgtt gtgggcgggt tggccgcct 240
 aaaaccatgt tcctcaaaga tcatttggtt cccaacactg gggtgctgac cagaagtgcc 300
 aggaagctga ataccatttc cagtgtcata ccagggngg gtgaccaaag ggggtcnttt 360
 ngacctggng aaaggaacca tccaaaanct ctgncccatg 400

<210> 251
 <211> 514
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(514)
 <223> n = A,T,C or G

<400> 251
 agcgtggncg cggccgaggt ctgaggatgt aaactcttcc caggggaagg ctgaagtgt 60
 gaccatgggt ctactgggtc cttctgagtc agatatgtga ctgatgngaa ctgaagtagg 120
 tactgtagat ggtgaagtct ggggtgtccct aaatgctgca tctccagagc cttccatcat 180
 taccgtttct tcttttgcta tgggatgaga cactgttgag tattctctaa agtcaccact 240
 gaaatcttcc tccaaaggaa aacctgtgga aaagcccctt atttctgccc cataatttgg 300
 ttctccta atcctctgaaa tcactatttc cctggaangt ttgggaaaaa nngggcnacc 360
 tgncantgga aantggatan aaagatccca ccattttacc caacnagcag aaagtgggaa 420
 nggtaccgaa aagctccaag taanaaaaag gagggaaagta aaggtcaagt gggcaccagt 480
 ttcaaacaaa actttcccca aactatanaa ccca 514

<210> 252
 <211> 501
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(501)
 <223> n = A,T,C or G

<400> 252
 aagcggccgc cggggcaggn ncagnagtgc cttcgggact gggntcacc ccaggtctgc 60
 ggcagttgtc acagcgccag ccccgctggc ctccaaagca tgtgcaggag caaatggcac 120
 cgagatatc cttctgccac tgttctccta cgtggtatgt cttcccatca tcgtaacacg 180
 ttgcctcatg agggtcacac ttgaattctc cttttccgtt cccaagacat gtgcagctca 240

tttggctggc tctatagttt ggggaaagt	tgttgaaact	gtgccactga	cctttacttc	300
ctccttctct actggagctt tccgtacctt	ccacttctgc	tgntggnaaa	aagggnggaa	360
cntcttatca atttcattgg acagtanccc	nctttctncc	caaaacatnc	aagggaaaat	420
attgattncn agagcggatt aaggaacaac	ccnaattatg	ggggccagaa	ataaaggggg	480
cttttccaca ggtnttttcc t				501

<210> 253

<211> 226

<212> DNA

<213> Homo sapien

<400> 253

tcgagcggcc gcccgggcag gtctgcaggc	tattgtaagt	gttctgagca	catatgagat	60
aacctgggcc aagctatgat gttcgatacg	ttaggtgtat	taaatgcact	tttgactgcc	120
atctcagtgg atgacagcct tctcactgac	agcagagatc	ttcctcactg	tgccagtggg	180
caggagaaag agcatgctgc gactggacct	cggccgcgac	cacgct		226

<210> 254

<211> 226

<212> DNA

<213> Homo sapien

<400> 254

agcgtgggtcg cggccgaggt ccagtcgcag	catgctcttt	ctcctgceca	ctggcacagt	60
gaggaagatc tctgctgtca gtgagaaggc	tgtcatccac	tgagatggca	gtcaaaagtg	120
catttaatac acctaacgta tcgaacatca	tagcttggcc	caggttatct	catatgtgct	180
cagaacactt acaatagcct gcagacctgc	ccgggcggcc	gctcga		226

<210> 255

<211> 427

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(427)

<223> n = A,T,C or G

<400> 255

cgagcggccg cccgggcagg tccagactcc	aatccagaga	accaccaagc	cagatgtcag	60
aagctacacc atcacaggtt tacaaccagg	cactgactac	aagatctacc	tgtacacctt	120
gaatgacaat gctcggagct cccctgtggt	catcgacgcc	tccactgcca	ttgatgcacc	180
atccaacctg cgtttccttg ccaccacacc	caattccttg	ctggtatcat	ggcagccgcc	240
acgtgccagg attaccggct acatcatcaa	gtatgagaag	cctgggtctc	ctcccagaga	300
agtgggccct cggccccgcc ctggtgnac	agaagctact	attactggcc	tggaaccggg	360
aaccgaatat acaatttatg tcattgccct	gaagaataat	canaagagcg	agccccctgat	420
tggaagg				427

<210> 256

<211> 535

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(535)

<223> n = A,T;C or G

<400> 256

agcgtgggtcg	cggccgaggt	cctgtcagag	tggcactggt	agaagttcca	ggaaccctga	60
actgtaaggg	ttcttcatca	gtgccaacag	gatgacatga	aatgatgtac	tcagaagtgt	120
cctggaatgg	ggcccatgag	atggttgtct	gagagagagc	ttcttgtcct	gtctttttcc	180
ttccaatcag	gggtctgctc	ttctgattat	tcttcagggc	aatgacataa	attgtatatt	240
cggttcccgg	ttccaggcca	gtaatagtag	cctctgtgac	accagggcgg	ggccgagggg	300
ccactttctct	gggaggagac	ccaggcttct	catacttgat	gatgtanccg	gtaatcctgg	360
caccgtggcg	gctgccatga	taccagcaag	gaattgggtg	tggtaggcaa	gaaacgcagg	420
ttggatgggtg	catcaatggc	agtggaggcg	tcgathacca	caggggagct	ccgancattg	480
tcattcaagg	tggacaggta	gaatcttgta	atcagggtgcc	tggtttgtaa	acctg	535

<210> 257

<211> 544

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(544)

<223> n = A,T,C or G

<400> 257

tcgagcggcc	gcccgggcag	gtttcgtgac	cgtgacctcg	aggtggacac	caccctcaag	60
agcctgagcc	agcagatcga	gaacatccgg	agcccagagg	gcagccgcaa	gaaccccgcc	120
cgcacctgcc	gtgacctcaa	gatgtgccac	tctgactgga	agagtggaga	gtactggatt	180
gaccccaacc	aaggctgcaa	cctggatgcc	atcaaagtct	tctgcaacat	ggagactggg	240
gagacctgcg	tgtacccac	tcagcccagt	gtggcccaga	agaactggta	catcagcaag	300
aaccccaagg	acaagaagca	tgtctgggtc	ggcgaaagca	tgaccgatgg	attccagttc	360
gagtatggcg	gccagggctc	cgacctgcc	gatgtggacc	tcggccgcga	ccacgctaag	420
cccgaattcc	agcacactgg	cggccgttac	tagtgggatc	cgagcttcgg	taccaagctt	480
ggcgtaatca	tgggncatag	ctgtttcctg	ngtgaaaatg	gtattccgct	tcacaatttc	540
ccac						544

<210> 258

<211> 418

<212> DNA

<213> Homo sapien

<400> 258

agcgtgggtcg	cggccgaggt	ccacatcggc	agggtcggag	ccctggccgc	catactcgaa	60
ctggaatcca	tcggtcatgc	tctcgccgaa	ccagacatgc	ctcttgtcct	tggggttctt	120
gctgatgtac	cagttcttct	gggccacact	gggtgagtg	gggtacacgc	aggtctcacc	180
agtctccatg	ttgcagaaga	ctttgatggc	atccagggtg	cagccttggt	tggggtaaat	240
ccagtactct	ccactcttcc	agtcagagtg	gcacatcttg	aggtcacggc	aggtgcgggc	300
ggggttcttg	cggtgcctct	ctgggtcccg	gatgttctcg	atctgctggc	tcaagctctt	360
gaagggtggt	gtccacctcg	aggtaacggg	cacgaaacct	gcccgggcgg	ccgctcga	418

<210> 259

<211> 377

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(377)

<223> n = A,T,C or G

<400> 259

agcgtggtcg	cggccgaggt	caagaacccc	gcccgcacct	gccgtgacct	caagatgtgc	60
cactctgact	ggaagagtgg	agagtactgg	attgacccca	accaaggetg	caacctggat	120
gccatcaaag	tcttctgcaa	catggagact	ggtgagacct	gcgtgtacct	cactcagccc	180
agtgtggccc	agaagaactg	gtacatcagc	aagaacccca	aggacaagag	gcatgtctgg	240
ttcggcgaga	gcatgaccga	tggattccag	ttcgagtatg	gcggccaggg	ctccgacct	300
gccgatgtgg	acctgcccgn	gccggnccgc	tcgaaaagcc	cnaatttcca	gncacacttg	360
gccggccgtt	actactg					377

<210> 260

<211> 332

<212> DNA

<213> Homo sapien

<400> 260

tcgagcggcc	gcccgggcag	gtccacatcg	gcagggtcgg	agccctggcc	gccatactcg	60
aactggaatc	catcggtcac	gctctcgccg	aaccagacat	gcctcttgtc	cttgggggttc	120
ttgctgatgt	accagttctt	ctggggccaca	ctgggctgag	tgggggtacac	gcagggtctca	180
ccagtctcca	tgttgcaaaa	gactttgatg	gcatccaggt	tgcagccttg	gttgggggtca	240
atccagtact	ctccactctt	ccagtcagag	tggcacatct	tgagggtcacg	gcagggtgcgg	300
gcgggggttct	tgacctcgcc	cgcgaccacg	ct			332

<210> 261

<211> 94

<212> DNA

<213> Homo sapien

<400> 261

cgagcggccg	cccgggcagg	ccccccccct	tttttttttt	tttttttttt	tttttttttt	60
tttttttttt	tttttttttt	tttttttttt	tttt			94

<210> 262

<211> 650

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(650)

<223> n = A,T,C or G

<400> 262

agcgtggtcg	cggccgaggt	ctggcattcc	ttcgacttct	ctccagccga	gcttcccaga	60
acatcacata	tactgcaaaa	aatagcattg	catacatgga	tcaggccagt	ggaaatgtaa	120
agaaggccct	gaagctgatg	gggtcaaatg	aaggtgaatt	caaggctgaa	ggaaatagca	180
aattcaccta	cacagttctg	gaggatgggt	gcacgaaaca	cactggggaa	tggagcaaaa	240
cagtctttga	atatcgaaca	cgcaaggctg	tgagactacc	tattgtagat	attgcacct	300
atgacattgg	tggctctgat	caagaatttg	gtgtggacgt	tggccctgtt	tgctttttat	360
aaaccaaact	ctatctgaaa	tcccaacaaa	aaaaatttaa	ctccatatgt	gntcctcttg	420
ttctaattct	ggcaaccagt	gcaagtgacc	gacaaaattc	cagttattta	tttccaaaat	480

gttttggaac agtataat	ttt gacaaagaaa aaaggatact	tctctttttt	tggttggtcc	540
accaaataca attcaaaaagg	cttttttggtt ttattttttt	anccaattcc	aatttcaaaa	600
tgtctcaatg gngcttataa	taaaataaac tttcaccctt	ntttntgat		650

<210> 263
 <211> 573
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(573)
 <223> n = A,T,C or G

<400> 263	
agcgtgggtcg cggccgaggt ctgggatgct cctgctgtca cagtgaagata	ttacaggatc 60
acttacggag aaacaggagg aaatagccct gtccaggagt tcaactgtgcc	tgggagcaag 120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac	tgtgtatgct 180
gtcactggcc gtggagacag ccccgcaagc agcaagccaa ttccattaa	ttaccgaaca 240
gaaattgaca aaccatccca gatgcaagt accgatgttc aggacaacag	cattagtgtc 300
aagtggctgc cttcaagttc ccctgttact ggttacagaa gtaaccacca	ctcccaaaaa 360
tggaccagga ccaacaaaaa ctaaaactgc aggtccagat caaacagaaa	atggactatt 420
gaaggcttgc agcccacagt ggaagtatgt ggntaggngt ctatgctcag	aatcccaagc 480
cggagaaagt cagccttctg gtttagactg cagtaacca cattgatcgc	cctaaaggac 540
tggncattca cttggatggt ggatgtccaa ttc	573

<210> 264
 <211> 550
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(550)
 <223> n = A,T,C or G

<400> 264	
tcgagcggcc gcccgggcag gtccttgacg ctctgcagng tcttcttcac	catcaggtgc 60
agggaaatagc tcatggattc catcctcagg gctcgagtag gtcaccctgt	acctggaaac 120
ttgccctgt gggctttccc aagcaatttt gatggaatcg acatccacat	cagngaagtc 180
cagtccttta gggcgatcaa tgttggttac tgcagtctga accagaggct	gactctctcc 240
gcttggtatc tgagcataga cactaaccac atactccact gtgggctgca	agccttcaat 300
agtcatttct gtttgatctg gacctgcagt tttaagtttt tgggtggtcct	gnccccattt 360
tgggaagtgg ggggttactc tgtaaccagt aacaggggaa cttgaaggca	gccacttgac 420
actaatgctg ttgtcctgaa catcggtcac ttgcatctgg ggatggtttt	gacaatttct 480
ggttcggcaa attaatggaa attggcttgc tgcttggcgg ggctgntcc	acggggccagt 540
gacagcatac	550

<210> 265
 <211> 596
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature

<222> (1)...(596)

<223> n = A,T,C or G

<400> 265

tcgagcggcc	gcccgggcag	gtccttgca	ctctgcagtg	tcttcttcac	catcagggtgc	60
agggaaatagc	tcatggattc	catcctcagg	gctcgagtag	gtcaccctgt	acctggaaac	120
ttgcccctgt	gggctttccc	aagcaatttt	gatggaatcg	acatccacat	cagtgaatgc	180
cagtccttta	gggcgatcaa	tgttggttac	tgcagtctga	accagaggct	gactctctcc	240
gcttgattc	tgagcataga	cactaaccac	atactccact	gtgggctgca	agccttcaat	300
agtcatttct	gtttgatctg	gacctgcagt	tttaagtttt	tgttggnctt	gnnccatttt	360
tggggaagg	gtgggttact	ttgtaaccag	taacagggga	acttgaagca	gccacttgac	420
actaatgctg	gtggcctgaa	catcggtcac	ttgcatctgg	gatggtttgg	tcaatttctg	480
ttcggttaatt	aatgggaaat	tggcttactg	gcttgccggg	gctgtctcca	cggncagtga	540
caagcataca	caggngatgg	gtataatcaa	ctccagggtt	aaggccnctg	atggta	596

<210> 266

<211> 506

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(506)

<223> n = A,T,C or G

<400> 266

agcgtggctg	cggccgaggt	ctgggatgct	cctgctgtca	cagtgaagata	ttacaggatc	60
acttacggag	aaacaggagg	aaatagccct	gtccaggagt	tcactgtgcc	tgggagcaag	120
tctacagcta	ccatcagcgg	ccttaaacct	ggagtgtgatt	ataccatcac	tgtgtatgct	180
gtcactggcc	gtggagacag	ccccgcaagc	agtaagccaa	tttccattaa	ttaccgaaca	240
gaaattgaca	aacctatcca	gatgcaagt	accgatgttc	aggacaacag	cattagtgtc	300
aagtggctgc	cttcaagttc	ccctgttact	ggttacagag	taaccaccac	tcccaaaaat	360
gggaccagga	ccaacaaaaa	actaaaactg	canggtccag	atcaaacaga	aatgactatt	420
gaaggcttgc	agcccacagt	ggagtatgtg	ggttagtgct	tatgctcaga	atnccaagcg	480
gagagagtca	gcctctggtt	cagact				506

<210> 267

<211> 548

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(548)

<223> n = A,T,C or G

<400> 267

tcgagcggcc	gcccgggcag	gtcagcgctc	tcaggacgtc	accaccatgg	cctgggctct	60
gtcctcctc	accctcctca	ctcagggcac	agggtcctgg	gcccagtctg	ccctgaactca	120
gcctccctcc	gcgtccgggt	ctcctggaca	gtcagtcacc	atctcctgca	ctggaaccag	180
cagtgcagtt	ggtgcttatg	aatttgctc	ctggtacca	caacacccag	gcaaggcccc	240
caaactcatg	atttctgagg	tactaagcg	gccctcagg	gtccctgatc	gcttctctgg	300
ctccaagtct	ggcaacacgg	cctccctgac	cgtctctggg	ctccangctg	aggatganc	360
tgattattac	tggaagctca	tatgcaggca	acaacaattg	ggtgttcggc	ggaagggacc	420
aagctgaccg	tnctaaggctc	aagcccaagg	cttgcccccc	tcggtcactc	tgttcccacc	480

ctcctctgaa gaagctttca agccaacaan gncacactgg gtgtgtctca taagtggact 540 -
ttctaccc 548

<210> 268
<211> 584
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(584)
<223> n = A,T,C or G

<400> 268
agcgtgggtcg cggccgaggt ctgtagcttc tgtgggactt ccaactgctca ggcgtcaggc 60
tcaggtagct gctggccgcg tacttgttgt tgctttgntt ggaggggtgtg gtggtctcca 120
ctcccgcctt gacggggctg ctatctgcct tccaggccac tgtcacggct cccgggtaga 180
agtcaattat gagacacacc agtgtggcct tgttggcctt aagctcctca gaggaggggtg 240
ggaacagagt gaccgagggg gcagccttgg gctgacctag gacggtcagc ttggtccctc 300
cgccgaacac ccaattgttg ttgcctgcat atgagctgca gtaataatca gcctcatcct 360
cagcctggag cccagagacn gtcaagggag gcccggtgtt gccaaagactt ggaagccaga 420
naagcgatca gggacccctg agggccgctt tacngacctc aaaaaatcat gaatttgggg 480
ggcctttgcc tggnggttgg ttggtnacca gnaaaacaaa atttcataaa gcaccaacgt 540
cactgctggg ttccagtgcg ngaanatggg gaactgaant gtcc 584

<210> 269
<211> 368
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(368)
<223> n = A,T,C or G

<400> 269
agcgtgggtcg cggccgaggt ccagcatcag gagccccgcc ttgccggctc tgggtcctgc 60
ctttcttttt gtggcctgaa acgatgtcat caattcgag tagcagaact gccgtctcca 120
ctgctgtctt ataagtctgc agcttcacag ccaatggctc ccatatgccc agttccttca 180
tgtccaccaa agtaccgctc tcaccattta caccacaggt ctcacagttc tcttgggtgt 240
gcttggcccg aagggaggta agtanacgga tgggtgctgg cccacagttc tggatcaggg 300
tacgaggaat gacctctagg gcctgggcna caagccctgt atggacctgc cggggcgggc 360
ccgctcga 368

<210> 270
<211> 368
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(368)
<223> n = A,T,C or G

<400> 270

tcgagcggcc	gcccgggcag	gtccatacag	ggctgttgcc	caggccctag	aggncattcc	60
ttgtaccctg	atccagaact	gtgggaccag	caccatccgt	ctacttacct	cccttcgggc	120
caagcacacc	caggagaact	gtgagacctg	gggtgtaaat	ggngagacgg	gtactttggt	180
ggacatgaag	gaactgggca	tatgggagcc	attggctgng	aagctgcana	cttataagac	240
agcagtggag	acggcagttc	tgctactgcg	aattgatgac	atcgtttcag	gccacaaaaa	300
gaaaggcgat	gaccanagcc	ggcaaggcgg	ggcttctctga	tgctggacct	cggccgccga	360
ccacgctt						368

<210> 271
 <211> 424
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(424)
 <223> n = A,T,C or G

<400> 271	
agcgtggtcg	cggccgaggt
gcgttacaaa	ctcctaggag
catcatggag	agtggggcca
gaggggctaaa	tccatgaagt
ctactacgtt	gacactgctg
ggtgaagatc	atgctgccct
cntgaccacg	tgaaccattt
attc	

<210> 272
 <211> 541
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(541)
 <223> n = A,T,C or G

<400> 272	
tcgagcggcc	gcccgggcag
gggcatggca	ggcggctctg
tatctcatct	ttgggttcca
cttaccagtt	gggtcccagg
gagcaacacg	tggcgcacag
catcaggcca	tccacaaact
ccacaacctc	gccagccttt
ancaaggccc	ttccgcacag
ttgcctgggg	caaattgggca
t	

<210> 273
 <211> 579
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(579)
 <223> n = A,T,C or G

<400> 273

agcgtggtcg	cggccgaggt	ctggccctcc	tggcaaggct	ggtgaagatg	gtcaccctgg	60
aaaacccgga	cgacctggtg	agagaggagt	tgttggacca	caggggtgctc	gtggtttccc	120
tggaactcct	ggacttcctg	gcttcaaagg	cattagggga	cacaatggtc	tggatggatt	180
gaagggacag	cccggtgctc	ctggtgtgaa	gggtgaacct	gngcccctg	gtgaaaatgg	240
aactccaggt	caaacaggag	cccnggggct	tcctggngag	agaggacgtg	ttggtgcccc	300
tggcccanac	ctgcccgggc	ggccgctcna	aaagccgaaa	tccagnacac	tggcggccgn	360
tactantgga	atccgaactt	cggtaccaaa	gcttggccgt	aatcatggcc	atagcttggt	420
ccctggggng	gaaattggta	ttccgctncc	aattccacac	aacataccga	acccggaaag	480
cattaaagtg	taaaagccct	gggggggcct	aaatgangtg	agcntaacte	ncattttaatt	540
ggcgttgccg	ttcactgccc	cgcttttcca	gtccgggna			579

<210> 274
 <211> 330
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(330)
 <223> n = A,T,C or G

<400> 274

tgcagcggcc	gcccgggcag	gtctggggcca	ggggcaccaa	cacgtcctct	ctcaccagga	60
agcccacggg	ctcctgtttg	acctggagtt	ccattttcac	caggggcacc	aggttcaccc	120
ttcacaccag	gagcaccggg	ctgtcccttc	aatccatcca	gaccattgtg	nccccaatg	180
cctttgaagc	caggaagtcc	aggagttcca	gggaaaccac	gagcaccctg	tgggtccaaca	240
actcctctct	caccaggtcg	tcggggtttt	ccagggtgac	catcttcacc	agccttgcca	300
ggaggggccag	acctcgggccg	cgaccacgct				330

<210> 275
 <211> 97
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(97)
 <223> n = A,T,C or G

<400> 275

ancgtggtcg	cggccgaggt	cctcaccaga	ggtgncacct	acaacatcat	agtggaggca	60
ctgaaagacc	ancagaggca	taagggttcg	gaagagg			97

<210> 276
 <211> 610
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
<222> (1)...(610)
<223> n = A,T,C or G

<400> 276

tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt	60
gtagttcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc	120
aaagcctaag cactggcaca acagttttaa gcctgattca gacattcggt cccactcatc	180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcatccg taggttggtt	240
caagccttcg ttgacagagt tgtccacggg aacaacctct tcccgaacct tatgcctctg	300
ctggtctttc agtgcctcca ctatgatgtt gtaggtggca cctctggtga ggacctcngn	360
ccngaacaac gcttaagccc gnattctgca gaataatccc atcacacttg gcggccgctt	420
cgancatgca tcntaaaagg ggcccccaatt tcccccttat aagngaancg gtatttncca	480
atctcactgg ncccgccgnt ttacaaaacg ncggtgaact ggggaaaaac cctggcggtt	540
acccaacttt aatcgccntt ggcagcacia tccccctttt tcgnccancn tgggcgtaaa	600
taaccgaaaa	610

<210> 277
<211> 38
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(38)
<223> n = A,T,C or G

<400> 277

ancngggtcg cggccgangt nttttttctt nttttttt	38
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<210> 278
<211> 443
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(443)
<223> n = A,T,C or G

<400> 278

agcgtggtcg cggccgaggt ctgaggttac atgcgtgggtg gtggacgtga gccacgaaga	60
ccctgaggtc aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa	120
gccgcgggag gagcagtaca acagcacgta ccggngnggtc agcgtcctca ccgtcctgca	180
ccagaattgg ttgaatggca aggagtacaa gngcaaggtt tccaacaaag ccntcccagc	240
ccccntcgaa aaaaccattt ccaaagccaa agggcagccc cgagaaccac aggtgtacac	300
cctgccccca tcccgggagg aaaagancaa naacnggtt cagccttaac ttgcttggtc	360
naangctttt tatcccaacg nacttcccc ntggaantgg gaaaaaccaa tgggccaanc	420
cgaaaaacaa ttacaanaac ccc	443

<210> 279
<211> 348
<212> DNA
<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(348)
 <223> n = A,T,C or G

<400> 279
 tcgagcggcc gcccgggcag gtgtcggagt ccagcacggg aggcgtggtc ttgtagttgt 60
 tctccggctg cccattgctc tcccactcca cggcgatgtc gctgggtag aagcctttga 120
 ccaggcaggt caggctgacc tggttcttgg tcatctctc ccgggatggg ggcaggggtga 180
 acacctgggg ttctcggggc ttgccctttg gttttgaana tggttttctc gatgggggct 240
 ggaagggtt tggtgnaaac cttgcacttg actccttgcc attcaccag ncctgngca 300
 ggacgngag gacnctnacc acacggaacc gggctgggtg actgctcc 348

<210> 280
 <211> 149
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(149)
 <223> n = A,T,C or G

<400> 280
 agcgtggctg cggacgangt cctgtcagag tggactgggt agaagttcca ngaaccctga 60
 actgtaaggg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagnn 120
 cctggaatgg ggcccatgan atggttgcc 149

<210> 281
 <211> 404
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(404)
 <223> n = A,T,C or G

<400> 281
 tcgagcggcc gcccgggcag gtccaccaca cccaattcct tgctgggtatc atggcagccg 60
 ccacgtgcca ggattaccgg ctacatcatc aagtatgaga agcctgggtc tcctcccaga 120
 gaagtgggtc ctcggtcccg ccctgggtgc acagaggcta ctattactgg cctggaaccg 180
 ggaaccgaat atacaattta tgtcattgcc ctgaagaata atcagaagag cgagcccctg 240
 attggaagga aaaagacaga cgagcttccc caactggtaa cccttcaca ccccaatctt 300
 catggaccag agatcttgga tgttccttcc acagttcaaa agacccttt cggcacccc 360
 cctgggtatg aacctgggaa aanggnantt aanctttcct ggca 404

<210> 282
 <211> 507
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(507)

<223> n = A,T,C or G

<400> 282

agcgtggtcg	cggccgaggt	ctgggatgct	cctgctgtca	cagttagata	ttacaggatc	60
acttacggag	aaacaggagg	aaatagccct	gtccaggagt	tcactgtgcc	tgggagcaag	120
tctacagcta	ccatcagcgg	ccttaaacct	ggagttgatt	ataccatcac	tgtgtatgct	180
gtcactggcc	gtggagacag	ccccgcaagc	agcaagccaa	tttccattaa	ttaccgaaca	240
gaaattgaca	aaccatccca	gatgcaagt	accgatgttc	aggacaacag	cattagtgtc	300
aagtggctgc	cttcaaggtn	ccctgggtact	gggttacaga	ntaaccacca	ctcccaaaaa	360
tggaccagga	accacaaaaa	cttaaactgc	aggggtccaga	tcaaaacaga	aatgactatt	420
gaangcttgc	agcccacagt	gggagtatgn	gggtagtgn	tatgcttcag	aatccaagcg	480
gaaaaangtc	aagccttntg	ggttcaa				507

-- <210> 283

<211> 325

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(325)

<223> n = A,T,C or G

<400> 283

tcgagcggcc	gcccgggcag	gtccttgacg	ctctgcagtg	tcttcttcac	catcaggtgc	60
agggaatagc	tcatggattc	catcctcagg	gctcgagtag	gtcaccctgt	acctggaaac	120
ttgcccctgt	gggctttccc	aagcaatttt	gatggaatcg	acatccacat	cagtgaatgc	180
cagtccttta	gggcgatcaa	tgttggttac	tgcagnctga	accagaggct	gactctctcc	240
gcttggtatc	tgagcataga	cactaaccac	atactccact	gtgggctgca	anccttcaat	300
aanncatttc	tgtttgatct	ggacc				325

<210> 284

<211> 331

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(331)

<223> n = A,T,C or G

<400> 284

tcgagcggcc	gcccgggcag	gtctggtggg	gtcctggcac	acgcacatgg	ggngttgnt	60
ctnatccagc	tgcccagccc	ccattggcga	gtttgagaag	gtgtgcagca	atgacaacaa	120
naccttcgac	tcttcttgcc	acttctttgc	cacaaagtgc	accctggagg	gcaccaagaa	180
gggccacaag	ctccacctgg	actacatcgg	gccttgcaaa	tacatcccc	cttgccctgga	240
ctctgagctg	accgaattcc	cccttgcgca	tgcgggactg	gctcaagaac	cgtcctggca	300
cccttgatg	anagggatga	agacacnacc	c			331

<210> 285

<211> 509

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(509)
 <223> n = A,T,C or G

<400> 285

agcgtggtcg	cggccgaggt	ctgtcctaca	gtcctcagga	ctctactccc	tcagcagcgt	60
ggtgaccgtg	ccctccagca	acttcggcac	ccagacctac	acctgcaacg	tagatcacia	120
gcccagcaac	accaaggtgg	acaagagagt	tgagcccaaa	tcttgtgaca	aaactcacac	180
atgccaccg	tgcccagcac	ctgaactcct	ggggggaccg	tcagtcttcc	tcttcccccg	240
catccccctt	ccaaacctgc	ccgggcggcc	gtcgcgaaagc	cgaattccag	cacaactggc	300
gccggtacta	gtgganccna	acttggnanc	caacctggng	gaantaatgg	gcataanctg	360
tttctggggg	gaaattggta	tccngtttac	aattcccnca	caacatacga	gccggaagca	420
taaaagngta	aaagcctggg	gnggcctan	tgaagtgaag	ctaaactcac	attaattngc	480
gttgccgctc	actggcccg	ttttccagc				509

<210> 286
 <211> 336
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(336)
 <223> n = A,T,C or G

<400> 286

tcgagcggcc	gcccgggcag	gtttggaagg	gggatgcggg	ggaagaggaa	gactgacggt	60
ccccccagga	gttcaggtgc	tgggcacggt	gggcatgtgt	gagttttgtc	acaagatttg	120
ggctcaactc	tcttgtccac	cttgggtgtg	ctgggcttgt	gatctacgtt	gcaggtgtag	180
gtctggngc	cgaagttgct	ggagggcacg	gtcaccacgc	tgctgagga	gtagagtcct	240
gaggactgta	ngacagacct	cggccngac	cacgctaagc	cgaattctgc	agatatccat	300
cacactggcg	gccgctccga	gcatgcattt	tagagg			336

<210> 287
 <211> 30
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(30)
 <223> n = A,T,C or G

<400> 287

agcgtggncc	cggaacganga	caacaacccc	30
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<210> 288
 <211> 316
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(316)
 <223> n = A,T,C or G

<400> 288

tcgagcggcc	gcccgggcag	gnccacatcg	gcagggctcg	agccctggcc	gccatactcg	60
aactggaatc	catcggtcat	gctcttgccg	aaccagacat	gcctcttgtc	cttgggggttc	120
ttgctgatgn	accagttctt	ctgggccaca	ctgggctgag	tggggtacac	gcaggtctca	180
ccagtctcca	tgttgagaa	gactttgatg	gcattccaggt	tgcagccttg	gttgggggtca	240
atccagtact	ctccactctt	ccagtcagag	tggcacatct	tgaggtcacg	gcaggtgcgg	300
gcgggggttct	tgacct					316

<210> 289

<211> 308

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(308)

<223> n = A,T,C or G

<400> 289

agcgtggtcg	cggccgaggt	ccagcctgga	gataanggtg	aaggtggtgc	ccccggactt	60
ccaggtatag	ctggacctcg	tggtagccct	ggtgagagag	gtgaaactgg	ccctccagga	120
cctgctggtt	tccctggtgc	tccctggacag	aatggtgaac	ctggnggtaa	aggagaaaga	180
ggggctccgg	ntganaaagg	tgaaggaggc	cctcctgnat	tggcaggggc	cccangactt	240
agaggtggag	ctggccccc	tggcccccga	ggaggaaaagg	gtgctgctgg	tcctcctggg	300
ccacctgg						308

<210> 290

<211> 324

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(324)

<223> n = A,T,C or G

<400> 290

tcgagcggcc	gcccgggcag	gtctgggcca	ggaggaccaa	taggaccagt	aggacccctt	60
gggccatctt	tccctgggac	accatcagca	cctggaccgc	ctggttcacc	cttgtcaccc	120
tttgaccag	gacttccaag	acctcctctt	tctccaggca	ttccttgagc	accaggagta	180
ccancagcac	caggtggccc	aggaggacca	gcagcaccct	ttcctccttc	gggaccaggg	240
ggaccagctc	cacctetaag	tcctggggcc	cctgccaatc	caggaggggc	tccttcacct	300
ttctcacccg	gagccctctt	ttct				324

<210> 291

<211> 278

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(278)

<223> n = A,T,C or G

<400> 291

tcgagcggcc gcccgggcag gtccaccggg atattcgggg gtctggcagg aatgggaggc	60
atccagaacg agaaggagac catgcaaagc ctgaacgacc gcctggcctc ttacctggac	120
agagtgagga gcctggagac cgacaaccgg aggtctggaga gcaaaatccg ggagcacttg	180
gagaagaagg gaccccaggt cagagactgg agccattact tcaagatcat cgaggacctg	240
agggtcana tcttcgcaaa tactgcngac aatgcccc	278

<210> 292

<211> 299

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(299)

<223> n = A,T,C or G

<400> 292

atgcgnggtc gcggccgang accanctctg gctcatactt gactctaaag nntcaccag	60
nanttacggn cattgccaat ctgcagaacg atgcgggcat tgtccgcant atttgcgag	120
atctgagccc tcaggncctc gatgatcttg aagtaanggc tccagtctct gacctggggg	180
cccttcttct ccaagtgtc cgggattttg ctctccagcc tccggttctc ggtctccaag	240
ncttctcact ctgtccagga aaagaggcca ggcgngcgt cagggtttt gcatggact	299

<210> 293

<211> 101

<212> DNA

<213> Homo sapien

<400> 293

agcgtggtcg cggccgaggt tgtacaagct tttttttttt tttttttttt tttttttttt	60
tttttttttt tttttttttt tttttttttt tttttttttt t	101

<210> 294

<211> 285

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(285)

<223> n = A,T,C or G

<400> 294

tcgagcggcc gcccgggcag gtctgccaac accaagattg gccccgcgcg catccacaca	60
gttngtgtgc ggggaggtaa caagaaatac cgtgccctga ggntggacgn ggggaatttc	120
tcctggggct cagagtgttg tactcgtaaa acaaggatca tcgatgttgt ctacaatgca	180
tctaataacg agctgggtcg taccaagacc ctggtgaaga attgcatcgt gctcatngac	240
agcacaccgt accgacagtg ggtaccgaag tcccactatg cncct	285

<210> 295

<211> 216

<212> DNA

<213> Homo sapien

<400> 295

tcgagcggcc	gcccgggcag	gtccaccaca	cccaattcct	tgctgggtatc	atggcagccg	60
ccacgtgcca	ggattaccgg	ctacatcatc	aagtatgaga	agcctgggtc	tcctcccaga	120
gaagtgggtc	ctcggccccg	ccctgggtgc	acagaggcta	ctattactgg	cctggaaccg	180
ggaaccgaat	atacaattta	tgtcattgcc	ctgaag			216

<210> 296

<211> 414

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(414)

<223> n = A,T,C or G

<400> 296

agcgtgntcn	cggccgagga	tggggaagct	cgncgtgtctt	tttccttcca	atcaggggct	60
nnntcttctg	attattcttc	agggcaanga	cataaattgt	atattcggt	cccgggtcca	120
gnccagtaat	agtagcctct	gtgacaccag	ggcggggccg	agggaccact	tctctgggag	180
gagacccagg	cttctcatac	ttgatgatga	agccggtaat	cctggcacgt	gggcggtgc	240
catgatacca	ccaangaatt	gggtgtgggtg	gacctgcccg	ggcggggccg	tcgaaaancc	300
gaattcntgc	aagaatatcc	atcacacttg	ggcggggccgn	tcgaaccatg	catcntaaaa	360
gggcccacat	ttcccccta	ttagnggaag	ccncatttaa	caaattccac	ttgg	414

<210> 297

<211> 376

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(376)

<223> n = A,T,C or G

<400> 297

tcgagcggcc	gcccgggcag	gtctcgcggt	cgcactgggtg	atgctgggtcc	tgttgggtccc	60
cccggccctc	ctggacctcc	tggtccccct	ggctctccca	gcgctgggtt	cgacttcagc	120
ttcctgcccc	agccacctca	agagaaggct	cacgatgggtg	gccgctacta	ccgggctgat	180
gatgccaatg	tggttcgtga	ccgtgacctc	gaggtggaca	ccaccctcaa	gagccttgag	240
ccagcagaat	cgaaaacatt	cggaacccaa	gaagggaag	cccgcaaaga	aaccccgccc	300
gcacctggcc	gngaacctcc	aagaangtgc	ccacntcttg	actgggaaaa	aaagggaaaa	360
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<210> 298

<211> 357

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(357)

<223> n = A,T,C or G

<400> 298

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agcgtgggtcg cggccgaggt ccacatcggc agggtcggag ccctggccgc cataactcgaa    60
ctggaatcca tcggatcatgc tctcgccgaa ccagacatgc ctcttgctct tgggggttctt    120
gctgatgtac cagttcttct gggccacact gggctgagtg gggtagacgc aggtctcacc    180
agtctccatg ttgcagaaga ctttgatggc atccagggtg cagccttggt tgggggtcaat    240
ccagtactct ccactcttcc agtcagaagt ggcacatctt gaggtcacgg caggggtgagg    300
gcgggggttct tgcgggctgc ccttctgggc tcccgaatg ttctnngaac ttgctggg    357

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<210> 299

<211> 307

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(307)

<223> n = A,T,C or G

<400> 299

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agcgtgggtcg cggccgaggt ccactagagg tctgtgtgcc attgcccagg cagagtctct    60
gcgttacaaa ctccataggag ggcttgctgt gcggaggggc tgctatgggtg tgctgcgggtt    120
catcatggag agtggggcca aaggctgcga ggttggtgtg tctgggaaac tccgaggaca    180
gagggctaaa tccatgaagt ttgtggatgg cctgatgatc cacagcggag accctgttaa    240
ctactacgtt gacacttgct tgtgcgccac gtgttgctca nacanggggtg ggctgggcat    300
caaggng                                           307

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<210> 300

<211> 351

<212> DNA

<213> Homo sapien

<400> 300

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tcgagcggcc gcccgggcag gtctgccaaag gagaccctgt tatgctgtgg ggactggctg    60
gggcatggca ggcggctctg gcttcccacc cttctgttct gagatggggg tgggtggcag    120
tatctcatct ttgggttcca caatgtctac gtggtcaggc aggggcttct tagggccaat    180
cttaccagtt ggggtcccagg gcagcatgat cttcaccttg atgccagca caccctgtct    240
gagcaacacg tggcgcacag caagtgtcaa cgtaagtaag ttaacagggt ctccgctgtg    300
gatcatcagg ccattccaaa acttcatgga ttaaccctc tgtcctcgga g                                           351

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<210> 301

<211> 330

<212> DNA

<213> Homo sapien

<400> 301

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tcgagcggcc gcccgggcag gtgtttcaga ggttccaagg tccactgtgg aggtcccagg    60
agtgtgtgtg gtgggcacag aggtccgatg ggtgaaacca ttgacataga gactgttcct    120
gtccagggtg taggggcca gctctttgat gccattggcc agttggctca gctcccagta    180
cagccgctct ctgttgagtc cagggctttt ggggtcaaga tgatggatgc agatggcatc    240
cactccagtg gctgtccat ctttctcgga cctgagagag gtcagtctgc agccagagta    300
cagagggcca aactggtgt tctttgaata                                           330

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<210> 302

<211> 317

<212> DNA

<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(317)
 <223> n = A,T,C or G

<400> 302
 agcgtggtcg cggccgaggt ctgtactggg agctaagcaa actgaccaat gacattgaag 60
 agctgggccc ctacaccctg gacaggaaca gtctctatgt caatgggttc acccatcaga 120
 gctctgtgnc caccaccagc actcctggga cctccacagt ggatttcaga acctcaggga 180
 ctccatcctc cctctccagc cccacaatta tggctgctgg ccctctcctg gtaccattca 240
 ccctcaactt caccatcacc aacctgcagt atggggagga catgggtcac cctgnctcca 300
 ggaagttcaa caccaca 317

<210> 303
 <211> 283
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(283)
 <223> n = A,T,C or G

<400> 303
 tcgagcggcc gcccgagcag gtctgggcgg atagcaccgg gcatattttg gaatggatga 60
 ggtctggcac cctgagcagt ccagcgagga cttggtctta gttgagcaat ttggctagga 120
 ggatagtatg cagcacgnt ctgagnctgt gggatagctg ccatgaagta acctgaagga 180
 ggtgctggct ggtanggggt gattacaggg ttgggaacag ctcgtaact tgccattctc 240
 tgcatatact ggtagtgag gtgagcctgg ccctcttctt ttg 283

<210> 304
 <211> 72
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(72)
 <223> n = A,T,C or G

<400> 304
 agcgtggtcg cggccgaggt gagccacagg tgaccggggc tgaagctggg gctgctggnc 60
 ctgctgggtc tg 72

<210> 305
 <211> 245
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(245)
 <223> n = A,T,C or G

<400> 305

cagcngctcc	naaggggcct	gnngggaccaa	caacaccgtt	ttcaccctta	ggccctttgg	60
ctcctctttc	tccttttagca	ccagggttgac	cagcagcncc	ancaggacca	gcaaateccat	120
tggggccagc	aggaccgacc	tcaccacgtt	caccagggct	tccccgagga	ccagcaggac	180
cagcaggacc	agcagcccca	gcttcgcccc	ggtcacctgt	ggctcacctc	ggccgcgacc	240
acgct						245

<210> 306

<211> 246

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(246)

<223> n = A,T,C or G

<400> 306

tgcagcggtc	gcccgggcag	gtccaccggg	atagccgggg	gtctggcagg	aatgggaggc	60
atccagaacg	agaaggagac	catgcaaagc	ctgaacgacc	gcctggcctc	ttacctggac	120
agagtgcgga	gcctggagac	cganaaccgg	aggctggana	gcaaaatccg	ggagcacttg	180
gagaagaagg	gaccccgagt	caagagactg	gagccattac	ttcaagatca	tgcagggacc	240
tggagg						246

<210> 307

<211> 333

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(333)

<223> n = A,T,C or G

<400> 307

agcgnnggtcg	cggccgaggt	ccagctctgt	ctcactacttg	actctaaagt	catcagcagc	60
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ctgagccctc	aggtcctcga	tgatcttgaa	gtaatggctc	cagtctctga	cctgggggtcc	180
cttctttctcc	aagtgtctcc	ggattttgtc	ctccagcctc	cggttctcgg	tctccaggct	240
cctcactctg	tccaggtaag	aaggcccagg	cggtcgttca	ggctttgcat	ggtctccttc	300
tcgtttctgga	tgccctcccat	tcctgccaga	ccc			333

<210> 308

<211> 310

<212> DNA

<213> Homo sapien

<400> 308

tgcagcggcc	gcccgggcag	gtcaggaagc	acattgggtct	tagagccact	gcctcctgga	60
ttccacctgt	gctgcggaca	tctccaggga	gtgcagaagg	gaagcaggtc	aaactgctca	120
gatcagtcag	actggctgtt	ctcagttctc	acctgagcaa	ggtcagtctg	cagccagagt	180
acagagggcc	aacactgggtg	ttcttgaaca	agggtttgag	cagaccctgc	agaaccctct	240
tccgtgggtgt	tgaacttcct	ggaaaccagg	gtgttgcatg	tttttctca	taatgcaagg	300
ttggtgatgg						310

<210> 309
 <211> 429
 <212> DNA
 <213> Homo sapien

<400> 309
 agcgtggtcg cggccgaggt ccacatcggc agggctcgag ccctggccgc catactcgaa 60
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 gctgatgtac cagttcttct gggccacact gggctgagtg gggtagaccg caggtctcac 180
 cagtctccat gttgcagaag actttgatgg catccaggtt gcagccttgg ttgggggtcaa 240
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 cgggcccggg gttcttgcg cttgccctct gggctccgga tgttctcgat ctgcttggt 360
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 cccgctcga 429

<210> 310
 <211> 430
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(430)
 <223> n = A,T,C or G

<400> 310
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 cgcacctgcc gtgacctcaa gatgtgccac tctgactgga agagtggaga gtactggatt 180
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 gaccaccgct 430

<210> 311
 <211> 2996
 <212> DNA
 <213> Homo sapien

<400> 311
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aatttccaca ttgtcaactg gaacctcagt aatccagacc ccacatctc agagtacatc    2040
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<210> 312

<211> 914

<212> PRT

<213> Homo sapien

<400> 312

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Leu Gly Pro Pro Gln Trp Thr Trp Glu His Leu Gly Leu Gln Phe Leu
          20           25           30
Asn Leu Val Pro Arg Leu Pro Ala Leu Ser Trp Cys Tyr Ser Leu Ser
          35           40           45
Thr Ser Pro Ser Pro Thr Cys Gly Met Arg Arg Thr Cys Ser Thr Leu
          50           55           60
Ala Pro Gly Ser Ser Thr Pro Arg Arg Gly Ser Phe Arg Ala Trp Ser
65           70           75           80
Leu Phe Lys Ser Thr Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu
          85           90           95

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Thr Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala
 100 105 110
 Ile Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu
 115 120 125
 Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu
 130 135 140
 Gly Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr
 145 150 155 160
 His Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val
 165 170 175
 Tyr Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala
 180 185 190
 Ala Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn
 195 200 205
 Leu Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr
 210 215 220
 Thr Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr
 225 230 235 240
 Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro
 245 250 255
 Glu Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg
 260 265 270
 Pro Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu
 275 280 285
 Leu Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu
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 Asp Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val
 305 310 315 320
 Pro Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn
 325 330 335
 Phe Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly
 340 345 350
 Ser Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser
 355 360 365
 Pro Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg
 370 375 380
 Val Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp
 385 390 395 400
 Leu Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile
 405 410 415
 Lys Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg
 420 425 430
 Leu Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr
 435 440 445
 Asn Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr
 450 455 460
 Thr Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His
 465 470 475 480
 Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser
 485 490 495
 Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val
 500 505 510
 Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro
 515 520 525
 Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly

530 535 540
 Ala-Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val
 545 550 555 560
 Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu
 565 570 575
 Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser
 580 585 590
 Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu
 595 600 605
 Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp
 610 615 620
 Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys
 625 630 635 640
 Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe
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 Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys
 660 665 670
 Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe
 675 680 685
 Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr
 690 695 700
 Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln
 705 710 715 720
 Pro Thr Ser Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile
 725 730 735
 Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn
 740 745 750
 Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln Leu Phe
 755 760 765
 Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val Ser Thr
 770 775 780
 Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser Leu Cys
 785 790 795 800
 Asn Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val Ala Ile Tyr Glu
 805 810 815
 Glu Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu Gln Asn Phe Thr
 820 825 830
 Leu Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe Pro Asn Arg Asn
 835 840 845
 Glu Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp Ala Val Ile Leu
 850 855 860
 Ile Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys Leu Ile Cys Gly
 865 870 875 880
 Val Leu Val Thr Thr Arg Arg Arg Lys Lys Glu Gly Glu Tyr Asn Val
 885 890 895
 Gln Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu Asp Leu Glu Asp
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 Leu Gln

<210> 313

<211> 656

<212> DNA

<213> Homo sapiens

<400> 313

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<210> 314

<211> 519

<212> DNA

<213> Homo sapiens

<400> 314

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cattcattag ctaatggtgt ctttggtat ttattaaaat caccacagca tagggggact 360
ttatgtttag gttttgtcta agagttagct tatctgcttc ttgtgctaac agggctattg 420
ctaccaggga ctttggacat gggggccagc gtttgaaaac ctcactagct ttttttgaga 480
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<210> 315

<211> 441

<212> DNA

<213> Homo sapiens

<400> 315

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cagaggcaac cagggtttat agtgctaggt aaatgtcatc tcttttgtgc tactgactca 180
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atgattttaa aattccaatg actttcgccc ttggggagaaa tttccaagga aatctctctc 360
gctcgctctc tccgttttcc tttgtgagct tctgggggag ggtagtggt gactttttga 420
tacgaaaaaa tgcattttgt,g 441
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<210> 316

<211> 247

<212> DNA

<213> Homo sapiens

<400> 316

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tggcgcggtg gctggatttc accttcttgc acctgccggt gagcgcttgg ggtctaaagg 60
ggcgggatac tccattatgg cccctcgccc ttaggggttg gaatagttag aaaaggcaac 120
ccagtctagc ttggtaagaa gagagacatg cccccaacct cggcgccctt tttcctcagc 180
atctgctgtc cttacttcag cgactgcagg agcttcacct gcaagaaaac agcattgagc 240
tgctgac 247
```

<210> 317
<211> 409
<212> DNA
<213> Homo sapiens

<400> 317
tgacagggct cctggagttg ttaagtcacc aagtagctgc aggggatgga cactgcccc 60
cacgatgtgg gatgaacagc agccttggtt tgtagcccag ggtgtccatg gatttgaccc 120
gaatgctccc tggaggccct gtggcgagga caggcactgg atggtccaga ccctctggct 180
ggaggagtgg tggagccagg actgggcctt cagccatgag ggctagaata acctgacctc 240
ttgcattcta aactgggtc attaatgaca cctttccagt ggatgttgca aaaaccaaca 300
ctgtcaggaa cctggccctg ggagggtcga ggtgagctca caaggagagg tcaagccaag 360
ccaaagggtg ggkaacacac aacaccaggg gaaaccagcc cccaaacca 409

<210> 318
<211> 320
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(320)
<223> n = A,T,C or G

<400> 318
caaggnagat cttaagnggg gtentatgta agtgtgtctc tggctccagg gttcctggag 60
cctcacgagg tcaggggaac ccttgtagaa ctccaccagc agcatcatct cgtgaaggat 120
gtcatttggtc aggaagctgt cctggacgta ggccatctcc acatccatgg ggatgccata 180
gtcactgggc ctttgctcgg gaggaggcat cccccagaaa ggcgagatct tggactcggg 240
gcctgggttg ccagaatagt aaggggagca nagcagggcg aggcagggtt ggaagccatt 300
gctggagccc tgcagccgca 320

<210> 319
<211> 212
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(212)
<223> n = A,T,C or G

<400> 319
tgaagcaata gcgcccccat tttacaggcg gagcatggaa gccagagagg tgggtggggg 60
agggggtcct tccctggctc aggcagatgg gaagatgagg aagccgctga agacgctgtc 120
ggcctcagag ccctggtaaa tgtgaccctt tttgggggtct ttttcaacct anacctgggtc 180
accctgctgc agacctcggc cgcgaccacg ct 212

<210> 320
<211> 769
<212> DNA
<213> Homo sapiens

<400> 320

```

tggaggtgta gcagtgagag gagatytcat gcaagagtgt cacagcagag ccctaaascc 60
tccaactcac cagttagaga tgagactgcc cagtactcag ccttcacatc ctggggccacc 120
tggagggcgt ctttctccat cagcgcatat tgagcagggg tactcagatc cttcttgga 180
cctacaagga agagaagcac actggaaggg tcattctcct tcagggcatc ggccagccac 240
tgcctgccat gggaggtgga aagtaaggga tgagttagtc tgcagggccc ctcccactga 300
cattcatagg cccaattacc ccctctctgg tcctacatgc attcttcttc ttcctgacca 360
ccccctctgt ctgaaccctc tcttcccgga gcctccatt atattgcagg atgctcactt 420
acttggtatg ttccagagat gccacatcat tcaggttgaa gacaatgatg atggcttgga 480
agagtggcag aaacagcccc aggttgacag ggaagacact actgctcatt tccccaatcc 540
ttccagctcc atatgagaaa gccatgtgca ctctgagacc cacctacccc acttcaccca 600
gccccttacc ttgagctcct ctatagtagg ttgatgcaat gcatttgaac ctctcctgcc 660
cagcgggtatc ccaactggaa ggaaggaaga gtgaagcaca ggtatgtatc ttgggggggtg 720
tgggtgctgg ggagaaggga tagctggaag ggggtgtgga gcactcaca 769

```

<210> 321

<211> 690

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(690)

<223> n = A,T,C or G

<400> 321

```

tgggctgtgg gcggcacctg tgctctgcag gccagacagc gatagaagcc tttgtctgtg 60
cctactcccc cgagggaac tgggaggtca acgggaagac aatcatcccc tataagaagg 120
gtgcctgggt ttgctctgc acagccagt tctcaggctg cttcaaagcc tgggaccatg 180
cagggggggt ctgtgaggtc cccaggaatc cttgtcgcag gagctgccag aaccatggac 240
gtctcaacat cagcacctgc cactgccact gtccccctgg ctacacgggc agatactgcc 300
aagtgaggtg cagcctgcag tgtgtgcacg gccgggttccg ggaggaggag tgctcgtgcg 360
tctgtgacat cggctacggg ggagcccagt gtgccaccaa ggtgcatttt cccttcacac 420
cctgtgacct gaggatcgac ggagactgct tcattggtgtc ttcagaggca gacacctatt 480
acagaagcca ggatgaaatg tcagaggaat ggcggggtgc tggcccagat caagagccag 540
aaagtgcagg acatcctcgc cttctatctg ggccgcctgg agaccaccaa cgaggtgact 600
gacagtgact ttgagaccag gaacttctgg atngggctca cctacaagac cgccaaggac 660
tccttncgct gggccacagg ggagcaccag 690

```

<210> 322

<211> 104

<212> DNA

<213> Homo sapiens

<400> 322

```

gtcgcaagcc ggagcaccac catgtagcct ttcccgaagt accggacctt ctctctctcc 60
acgtcacat cacggacatc atggagcagg accaccacct ggtc 104

```

<210> 323

<211> 118

<212> DNA

<213> Homo sapiens

<400> 323

```

gggccctggg cgcttccaaa tgacccagga ggtggctctgc gacgaatgcc ctaatgtcaa 60
actagtgaat gaagaacgaa cactggaagt agaaatagag cctgggggtga gagacgga 118

```

<210> 324
<211> 354
<212> DNA
<213> Homo sapiens

<400> 324
tgctctccgg gagcttgaag aagaaactgg ctacaaaggg gacattgccg aatgttctcc 60
agcgggtctgt atggacccag gcttgtcaaa ctgtactata cacatcgtga cagtcacccat 120
taacggagat gatgccgaaa acgcaaggcc gaagccaaag ccaggggatg gagagtgtgt 180
ggaagtcatt tctttaccca agaatgacct gctgcagaga cttgatgctc tggtagctga 240
agaacatctc acagtggacg ccaggggtcta ttcctacgct ctagcgctga aacatgcaaa 300
tgcaaaagcca tttgaagtgc ctttcttgaa attttaagcc caaatatgac actg 354

<210> -325
<211> 642
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(642)
<223> n = A,T,C or G

<400> 325
ncatgcttga atgggctcct ggtgagagat tgccccctgg tggtgaaaca atcgtgtgtg 60
cccactgata ccaagaccaa tgaaagagac acagttaagc agcaatccat ctcatttcca 120
ggcacttcaa taggtcgtcg attggtcctt gcaccagcag tggtagtcgt acctatttca 180
gagaggtctg aaattcaggt tcttagtttg ccagggacag gccctacctt atattttttt 240
ccatcttcat catccacttc tgcttacagt ttgctgctta caataactta atgatggatt 300
gagttatctg ggtgggtctct agccatctgg gcagtgtggt tctgtctaac caaagggcat 360
tggcctcaaa ccctgcattt ggtttagggg ctaacagagc tcctcagata atcttcacac 420
acatgtaact gctggagatc ttattctatt atgaataaga aacgagaagt ttttccaaag 480
tggttagtcag gatctgaagg ctgtcattca gataaccag cttttccttt tggcttttag 540
cccattcaga ctttgccaga gtcaagccaa ggattgcttt tttgctacag ttttctgcca 600
aatggcctag ttcctgagta cctggaaacc agagagaaag ag 642

<210> 326
<211> 455
<212> DNA
<213> Homo sapiens

<400> 326
tccgtgagga tgagcttcga gtccttcacc aggcaactgca ggggcacagt cacgtcaatc 60
accttcacct tctcgtctct cctgctcttg tcattgacaa acttcccgtg ccaggcattg 120
acgatgatga ggcccattct ggactcttct gcctcaatta tccttcggac agattcctgc 180
atcagccgga cagcggactc cgctcttgc ttcttctgca gcacatcggg ggcggcgctt 240
tccctctgct tctccaattc cttctctttc tgagccctga ggtatgggtt gatgatcaga 300
cgggtgatgg caaagtagac cactagaggg ccacgggtg catagaacat ggcgctgggc 360
agaagctggg ccgtcaagtg aatagggaag aagtatgtct gactggccct gttgagcttg 420
actttgagag aaacgccttg tggaactcca acgct 455

<210> 327
<211> 321
<212> DNA

<213> Homo sapiens

<400> 327

```
ttcactgtga actcgagtc ctcgatgaac tcgcacagat gtgacagccc tgtctccttg 60
ctctctgagt tctcttcaat gatgctgatg atgcagtcca cgatagcgcg cttataactca 120
aagccaccct cttcccgag catggtgaac aggaagtcca taaggacggc gtgtttgcga 180
ggatatttct gacacagggc actgatggcc tggacaacca ccaccttgaa ttcacccgag 240
atttctgaca tgaaggagga gatctgcttc atgaggcggt cgatgctgct ctcgctgccc 300
gtcttaagga ggggtggtgat g                                     321
```

<210> 328

<211> 476

<212> DNA

<213> Homo sapiens

<220> :

<221> misc_feature

<222> (1)...(476)

<223> n = A,T,C or G

<400> 328

```
tgcaggagg gccatgggg ctgtgaatgg gatgcagccc catggtgtcc ctgataaatc 60
cagtgtgcag tctgatgaag tctgggtggg tgtggtctac gggctggcag ctaccatgat 120
ccaagaggta atgcactcct ttcccatct ctcaccatc tgtatcctgg ccmagaaaaa 180
cttcccttca aaccaacca aatttccttt caaaggcata acccaaatgc catccttggg 240
ccggtctaataaagcctccc ccatttttcc cctgggtatgc attcccaggc tccctggcct 300
tncagggtct nctgtctgtg ggtcatagtt tatctcctcc caattgctgg gagctccttg 360
aaggcaaaga ctctactgcc tccatctatc cagtggaaagt ggctcttcag agggtgccaa 420
gttagtatgt atgactgtca tctctcccaa cagggcctga cttggsaggg cttcca      476
```

<210> 329

<211> 340

<212> DNA

<213> Homo sapiens

<400> 329

```
cgaggagat tgccagcacc ctgatggaga gtgagatgat ggagatcttg tcagtgctag 60
ctaagggtga ccacagccct gtcacaaggg ctgctgcagc ctgcctggac aaagcagtgg 120
aatatgggct tatccaaccc aaccaagatg gagagtgagg gggttgtccc tgggcccagg 180
gctcatgcac acgctaccta ttgtggcacg gagagtaagg acggaagcag ctttggctgg 240
tggtggctgg catgcccaat actcttgccc atcctcgctt gctgccctag gatgtcctct 300
gttctgagtc agcggccacg ttcagtcaca cagccctgct                                     340
```

<210> 330

<211> 277

<212> DNA

<213> Homo sapiens

<400> 330

```
tgtcaccatc acattggtgc caaatacca gaagacatcg tagatgaaga gtccgcccag 60
caggatgcag ccagtgtgta cattgttgag gtgcaggagc tctactccat taaggagaaa 120
ggccaggcca aaaaggttgt tggcaatcca gtgcttctc agcaggtagc agacgccaac 180
gatgctgctc aggccaggc acaccaggtc cttggtgtca aattcataat tgatgatctc 240
ctccttgttt tcccagaacc ctgtgtgaag agcagac                                     277
```

<210> 331
<211> 136
<212> DNA
<213> Homo sapiens

<400> 331
ttgtctccca cctcctttct ctgtcctctc ctgaggttct gccttacaat ggggacactg 60
atacaaacca cacacacaat gaggatgaaa acagataaca ggtaaaatga cctcacctgc 120
ccgggcggcc gctcga 136

<210> 332
<211> 184
<212> DNA
<213> Homo sapiens

<400> 332
ttgtgagata aacgcagata ctgcaatgca ttaaaacgct tgaaatactc atcagggatg 60
ttgctgatct tattgttgct taagtagaga gttagaagag agacagggag accagaaggc 120
agtctggcta tctgattgaa gctcaagtca aggtattcga gtgatttaag acctttaaaa 180
gcag 184

<210> 333
<211> 384
<212> DNA
<213> Homo sapiens

<400> 333
cggaaaactt cgaggaattg ctcaaagtgc tgggggtgaa tgtgatgctg aggaagattg 60
ctgtggctgc agcgtccaag ccagcagtgg agatcaaaca ggagggagac actttctaca 120
tcaaaacctc caccaccgtg cgcaccacag agattaactt caagggtggg gaggagtttg 180
aggagcagac tgtggatggg aggccctgta agagcctggt gaaatgggag agtgagaata 240
aaatggtctg tgagcagaag ctctgaagg gagagggccc caagacctcg tggaccagag 300
aactgaccaa cgatggggaa ctgatcctga ccatgacggc ggatgacgtt gtgtgcacca 360
gggtctacgt ccgagagtga gcgg 384

<210> 334
<211> 169
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(169)
<223> n = A,T,C or G

<400> 334
cnacaaacag agcagacacc ctggatccgg tcctgctact ggccaggacg gctggaccgt 60
aaaattgaat ttccacttcc tgaccgccgc cagaagagat tgattttctc cactatcact 120
agcaagatga acctctctga ggaggttgac ttggaagact atgtngccc 169

<210> 335
<211> 185
<212> DNA
<213> Homo sapiens

<400> 335
ccaggtttgc agcccaggct gcacatcagg ggactgcctc gcaatacttc atgctgttgc 60
tgctgactga tgggtgctgtg acggatgtgg aagccacacg tgaggctgtg gtgcgtgcct 120
cgaacctgcc catgtcagtg atcattgtgg gtgtgggtgg tgctgacttt gaggccatgg 180
agcag 185

<210> 336
<211> 358
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(358)
<223> n = A,T,C or G

<400> 336
ctgccccctgc cttacggcgg ccaganacac acccaggatg gcattggccc caaacttgga 60
tttgttctca gtcccatcca actccagcat caggttgtcc agtttctctt gctccaccac 120
agagagacct gagctgatga gggctggcgc gatggtggag ttgatgtggt cactgcctt 180
caggacacct ttgcctaaagt aacgctgttt gtctccatcc ctcagctcca gggcctcata 240
gatgcccgtg gaggtccac tgggcactgc agcccgaaa agacctttgg cagtatagag 300
atccacctcc actgtggggg tcccgcggga gtccaggatc tcccgggccc agatcttc 358

<210> 337
<211> 271
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(271)
<223> n = A,T,C or G

<400> 337
cacaaagcca ccagccnggg aaatcagaat ttacttgatg caactgactt gtaatagcca 60
gaaatcctgc ccagcatggg attcagaacc tggctgcaa ccaaaccac cgtcaaagtt 120
catacaggat aaaacaaatt caattgcctt ttccacatta atagcatcaa gcttcccaa 180
caaagccaaa gttgccaccg cacaaaaaga gaatcttggt tcaatttctc cctactttat 240
aaaagtagat ttttcacatc ccatgaagca g 271

<210> 338
<211> 326
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(326)
<223> n = A,T,C or G

<400> 338
ctgtgtccc gactngnnc tctcaggtac caccgactgc actgggcggg gccctctggg 60
gggaaaggct ccacggggca gggatacatc tcgaggccag tcatcctctg gaggcagccc 120
aatcaggtca aagattttgc ccaactggtc ggcttcagag tttccacaga agagaggctt 180

tcgacgaaac atctctgcaa agatacagcc aacactccac atgtccacag gtgttgcata 240
tgtggactgc agaagaactt cgggagctcg gtaccagagt gtaacaacca cgggtgtaag 300
tgccatctgg tagctgtaga ttctgg 326

<210> 339
<211> 260
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(260)
<223> n = A,T,C or G

<400> 339
ttcacctgag gactcatttc gtgccctttg ttgacttcaa gcaaagncct tcanggtctn 60
caaggacgnc acatttccac ttgcgaatgn nctcanggt catcttgaag aanaagnanc 120
ccaagtgtctg gatcccagac tcgggggtaa ccttggtgggt aagagctcat ccagtttatg 180
ctttaggacg tccanctact cgggggagct ggaagcctgc gtggatgcgg cctgctgga 240
cctcgccgc gaccacgcta 260

<210> 340
<211> 220
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(220)
<223> n = A,T,C or G

<400> 340
ctggaagccc ggctnggnct ggcagcggaa ggagccaggc aggttcacgc agcgggtgctg 60
gcagtagcgg tagcggcact cgtctatgtc cacacactcg ggcccgatct tgcggtaacc 120
atcagggcag gtgcactgat aggagccagg caagttatgg cagtcctggc tggggcgaca 180
gtcgtgcagg gcctgggcac actcgtccac atccacacag 220

<210> 341
<211> 384
<212> DNA
<213> Homo sapiens

<400> 341
ctgctaccag gggagcgaga gctgactatc ccagcctcgg ctaatgtatt ctacgccatg 60
gatggagctt cacacgatit cctcctgcgg cagcggcgaa ggtcctctac tgctacaccg 120
ggcgtcacca gtggcccgtc tgcctcagga actcctccga gtgagggagg agggggctcc 180
tttcccagga tcaaggccac agggaggaag attgcacggg cactgttctg aggaggaagc 240
cccgttggt tacagaagtc atggtgttca taccagatgt gggtagccat cctgaatggt 300
ggcaattata tcacattgag acagaaattc agaaagggag ccagccaccc tggggcagtg 360
aagtgccact ggtttaccag acag 384

<210> 342
<211> 245
<212> DNA
<213> Homo sapiens

<400> 342

```

ctggctaagc tcatcattgt tactgggtggg caccatgtcc ttgaagcttc aggcaagcaa 60
tgtaaccaac aagaatgacc ccaagtccat caactctcga gtcttcattg gaaacctcaa 120
cacagctctg gtgaagaaat cagatgtgga gaccatcttc tctaagtatg gccgtgtggc 180
cggctgttct gtgcacaagg gctatgcctt tgttcagtac tccaatgagc gccatgccc 240
ggcag                                           245

```

<210> 343

<211> 611

<212> DNA

<213> Homo sapiens

<400> 343

```

ccaaaaaaat caagatttaa ttttttttatt tgcactgaaa aactaatcat aactgttaat 60
tctcagccat ctttgaagct tgaaagaaga gtctttggta ttttgtaaac gtttagcagac 120
tttcctgccg gtgtcagaaa atcctattta tgaatcctgt cgggtattcct tggatatctga 180
aaaaaatacc aaatagtacc atacatgagt tatttctaag ttgaaaaat aaaaagaaat 240
tgcacacac taattacaaa atacaagttc tggaaaaaat attttcttc attttaaaac 300
tttttttaac taataatggc tttgaaagaa gaggcttaat ttgggggtgg taactaaaat 360
caaaagaaat gattgacttg agggctctctg tttggtaaga atacatcatt agcttaaata 420
agcagcagaa ggtagtttt aattatgtag ctctgttaa tattaagtgt tttttgtctg 480
ttttacctca atttgaacag ataagtttgc ctgcatgctg gacatgcctc agaaccatga 540
atagcccgtg ctgatcttg ggaacatgga tcttagagtc ctttgaata agttcttata 600
taaatacccc c                                           611

```

<210> 344

<211> 311

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(311)

<223> n = A,T,C or G

<400> 344

```

nctcgaaaaa gcccaagaca gcagaagcag acacctccag tgaactagca aagaaaagca 60
aagaagtatt cagaaaagag atgtcccagt tcatcgcca gtgcctgaac ccttaccgga 120
aacctgactg caaagtggga agaattacca caactgaaga ctttaaacat ctggctcgca 180
agctgactca cgggtgttatg aataaggagc tgaagtactg taagaatcct gaggacctgg 240
agtgcattga gaatgtgaaa cacaaaacca aggantacat taanaagtac atgcannan 300
tttggggctt g                                           311

```

<210> 345

<211> 201

<212> DNA

<213> Homo sapiens

<400> 345

```

cacacgggtc tcccgactgc caacctggag gcccaggccc tgtggaagga gccgggcagc 60
aatgtcaacca tgagtgtgga tgctgagtgt gtgccatgg tcaggacct tctcaggtac 120
ttctactccc gaaggattga catcacctg tcgtcagtc agtgcttcca caagctggcc 180
tctgcctatg gggccaggca g                                           201

```

<210> 346
<211> 370
<212> DNA
<213> Homo sapiens

<400> 346
ctgctccagg gcggtggtgtg ccttcgtggc ctctgcctcc tccgaggagc caggctgtgt 60
tctcttcaga atgttctgga gcagcagttt gaggcgggtg atgcgttgga agggcagaat 120
cagaaaggac ttgagggaaa ggcgctggca gacggggtcg ctctccagct tctccaagac 180
ctcccggaaa ttgctgttgc tattcatcag gctctggaag gtgcgttcct gataggctctg 240
gttggtgaca taaggcaggt agaccggcg gaagtctggg gcgtggttca ggactacgtc 300
acatacttgg aaggagaaga tattgttctc aaagttctct tccaggctctg aaaggaacgt 360
ggcgctgacg 370

<210> 347
<211> 416
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(416)
<223> n = A,T,C or G

<400> 347
ctgttggtgct gtgtatggac gtgggcttta ccatgagtaa ctccattcct ggtatagaat 60
ccccatttga acaagcaaag aagggtgataa ccatgtttgt acagcgacag gtgtttgctg 120
agaacaagga tgagattgct ttagtcctgt ttggtacaga tggcactgac aatccccctt 180
ctggtgggga tcagtatcag aacatcacag tgcacagaca tctgatgcta ccagattttg 240
atgttctgga ggacattgaa agcaaaatcc aaccagggtc tcaacaggct gacttcctgg 300
atgcactaat cgtgagcatg gatgtgattc aacatgaaac aataggaaaag aagtttggag 360
aagaggcata ttgaaatatt cactgacctc aagcagcccc attcagcaaa agtcan 416

<210> 348
<211> 351
<212> DNA
<213> Homo sapiens

<400> 348
gtacaggaga ggatggcagg tgcagagcgg gcactgagct ctgcagggtga aagggtcgg 60
cagttggatg ctctcctgga ggctctgaaa ttgaaacggg caggaaatag tctggcagcc 120
tctacagcag aagaaacggc aggcagtgcc caggagacag caggagacag atgccttcct 180
cttgtctcaa ctgcaaagag gcgttccttc ctctttcact aatcctcctc agcacagacc 240
ctttacgggt gtcaggctgg gggacagtaa ggtctttccc ttcccacaag gccatatctc 300
aggctgtctc agtgggggga aaccttggac aatacccggg ctttcttggg c 351

<210> 349
<211> 207
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(207)
<223> n = A,T,C or G

<400> 349

```

nccgggacat ctccaccctc aacagtggca agaagagcct ggagactgaa cacaaggcct 60
tgaccagtga gattgcactg ctgcagtcca ggctgaagac agagggctct gatctgtgcg 120
acagagtgag cgaaatgcag aagctggatg cacaggtcaa ggagctggtg ctgaagtcgg 180
cgggtggaggc tgagcgctg gtggctg                                     207

```

<210> 350

<211> 323

<212> DNA

<213> Homo sapiens

<400> 350

```

ccatacaggg ctgttgccca ggccctagag gtcattcctc gtaccctgat ccagaactgt 60
ggggccagca ccatccgtct acttacctcc cttcggggcca agcacaccca ggagaactgt 120
gagacctggg gtgtaaatgg tgagacgggt actttggtgg acatgaagga actgggcata 180
tgggagccat tggctgtgaa gctgcagact tataagacag cagtggagac ggcagttctg 240
ctactgcgaa ttgatgacat cgtttcaggc cacgaaaaga aaggcgatga ccagagccgg 300
caaggcgggg ctctgatgc tgg                                     323

```

<210> 351

<211> 353

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(353)

<223> n = A,T,C or G

<400> 351

```

cgccgcaccc cntgggtccct tccantccct tttcctttnt cngggaaact gtatgcgggt 60
tgtttttgggt ttgtagggtt tttttccttc tccacctctc cctgtctctt ttgctccatg 120
ttgtccgttt ctgtgggggt aggtttatgt ttttaatcat ctgagggtcac gtctatttcc 180
tccggactcg cctgcttggg ggcgattctc caccggttaa tatgggtgcg cccttttttc 240
ttttgttgcg aatctgagcc ttcttcctcc agcttctgcc ttttgaactt tgttcttcgg 300
ttctgaaacc atacttttac ctgagtttcc gtgaggctga ggctgtgtgc caa 353

```

<210> 352

<211> 467

<212> DNA

<213> Homo sapiens

<400> 352

```

ctgcccacac tgatcacttg cgagatgtcc ttaggggtaca agaacaggaa ttgaagtctg 60
aatttgagca gaacctgtct gagaaactct ctgaacaaga attacaattt cgtcgtctca 120
gtcaagagca agttgacaac tttactctgg atataaatac tgcctatgcc agactcagag 180
gaatcgaaca ggctgttcag agccatgcag ttgctgaaga ggaagccaga aaagcccacc 240
aactctggct ttcagtggag gcattaaagt acagcatgaa gacctcatct gcagaaacac 300
ctactatccc gctgggtagt gcagttgagg ccatcaaagc caactgttct gataatgaat 360
tcacccaagc ttttaaccgca gctatccctc cagagtccct gaccctggg gtgtacagt 420
aagagacct tagagcccggt ttctatgctg ttcaaaaact ggccccga 467

```

<210> 353

<211> 350

<212> DNA

<213> Homo sapiens

<400> 353

```
ctgctgcagc cacagtagtt ectcccatgg tgggtggccc tcttggtcct gctggcccag 60
gaaatctgtc cccaccagga acagcccctg gaaaacggcc ccgtcctcta ccaccttgtg 120
gaaatgctgc acgggaactg cctcctggag gaccagcttt accttcccca gacatttgtc 180
ctgatttgtg agttttcctg gactgcattt caaattgact caggaaactgt ttattgcatg 240
gagttacaac aggattctga ccatgaagtt ctcttttagg taacagatcc attaactttt 300
ttgaagatgc ttcagatcca acaccaacaa gggcaaacc ctttgactgg 350
```

<210> 354

<211> 351

<212> DNA

<213> Homo sapiens

<400> 354

```
athtagatga gatctgaggc atggagacat ggagacagta tacagactcc tagatttaag 60
ttttaggttt tttgcttttc taatcaccaa ttcttatata caatgtatat tttagactcg 120
agcagatgat catcttcata ttaagtcatt ccttttgact gagtatggca ggattagagg 180
gaatggcagt atagatcaat gtctttttct gtaaagtata ggaaaaacca gagaggaaaa 240
aaagagctga caattggaag gtagtagaaa attgacgata atttcttctt aacaaataat 300
agttgtatat acaaggaggc tagtcaacca gattttatatt gttgagggcg a 351
```

<210> 355

<211> 308

<212> DNA

<213> Homo sapiens

<400> 355

```
ttttggcgca agttttacag attttattaa agtcgaagct attggtcttg gaagatgaaa 60
atgcaaagt t gatgagggtg gaattgaagc cagatacctt aataaaatta tatcttggtt 120
ataaaaaata gaaattaagg gttaacatca atgtgccaat gaaaaccgaa cagaagcagg 180
aacaagaaac cacacacaaa aacatcgagg aagaccgcaa actactgatt caggcggcca 240
tcgtgagaat catgaagatg aggaagggtc tgaaacacca gcagttactt ggcgagggtc 300
tcactcag 308
```

<210> 356

<211> 207

<212> DNA

<213> Homo sapiens

<400> 356

```
ctgtcccaag tgctcccaga aggcaggatt ctgaagacca ctccagcgat atgttcaact 60
atgaagaata ctgcaccgcc aacgcagtca ctgggccttg ccgtgcatcc ttcccacgct 120
ggctactttga cgtggagagg aactcctgca ataacttcat ctatggaggc tgccggggca 180
ataagaacag ctaccgctct gaggagg 207
```

<210> 357

<211> 188

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(188)

<223> n = A,T,C or G

<400> 357

```
tcgaccacgc cctcgtagcg catgngctnc aggacgatgc tcagagtgat gaacacccccg 60
gtgcggccca cgccagcact gcagtgcacc gtgataggcc catcctgtcc aaactgctcc 120
ttggtcttat gcacctgccc gatgaagtca atgaatccct cgctgtctt gggcacgccc 180
tgctctgg                                     188
```

<210> 358

<211> 291

<212> DNA

<213> Homo sapiens

<400> 358

```
ctgggagcat cggcaagcta ctgccttaaa atccgatctc cccgagtgca caatttctgt 60
cccttttaag ggttcacaac actaaagatt tcacatgaaa gggttgtgat tgatttgagc 120
aggcaggcgg tacgtgacag gggctgcatg caccgggtgt cagagagaaa cagaacaggg 180
caggggaattt cacaatgttc ttctatacaa tggctggaat ctatgaataa catcagtttc 240
taagttatgg gttgattttt aactactggg tttaggccag gcaggcccag g          291
```

<210> 359

<211> 117

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(117)

<223> n = A,T,C or G

<400> 359

```
gccaccacac tccagcctgg gcaatacagc aagactgtct caaaaaaaaa aaaaaaaaaa 60
cccaaaaaaa ctcaaaaang taatgaatga tacccaangn gccttttcta gaaaaaag 117
```

<210> 360

<211> 394

<212> DNA

<213> Homo sapiens

<400> 360

```
ctgttcctct ggggtggtcc agttctagag tgggagaaa ggagtcaggc gcattgggaa 60
tcgtgggtcc agtctggttg cagaatctgc acatttgcca agaaattttc cctgtttgga 120
aagtttgccc cagctttccc gggcacacca cttttgtcc caagtgtctg ccggtcgacc 180
aatctgcctg ccacacattg accaagccag acccggttca cccagctcga ggatcccagg 240
ttgaagagtg gccccttgag gccctggaaa gaccaatcac tggacttett cccttgagag 300
tcagagggtca cccgtgattc tgctgcacc ttatcattga tctgcagtga tttctgcaaa 360
tcaagagaaa ctctgcaggg cactcccctg tttc          394
```

<210> 361

<211> 394

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(394)

<223> n = A,T,C or G

<400> 361

```
ctgggcggat agcaccgggc atattnntt natggatgag gtctggcacc ctgagcagtc 60
cagcgaggac ttggtcttag ttgagcaatt tggctaggag gatagtatgc agcacggttc 120
tgagtctgtg ggatagctgc catgaagtaa cctgaaggag gtgctggctg gtaggggttg 180
attacagggg tgggaacagc tcgtacactt gccattctct gcatatactg gttagttagg 240
tgagcctggc gctcttcttt gcgctgagct aaagctacat acaatggctt tgtggacctc 300
ggccgcgacc acgctaagcc gaattccagc acactggcgg ccgttactag tggatccgag 360
ctcggtagca agcttggcgt aatcatgggc atag 394
```

<210> 362

<211> 268

<212> DNA

<213> Homo sapiens

<400> 362

```
ctgcgcgtgg accagtcagc ttccgggtgt gactggagca gggcttgctg tcttcttcag 60
agtcactttg caggggttg tgaagctgct cccatccatg tacagctccc agtctactga 120
tgtttaagga tgggtctcggg ggtagggccc actagaataa actgagtcca atacctctac 180
acagttatgt ttaactgggc tctctgacac cgggaggaag gtggcggggg ttaggtgttg 240
caaacttcaa tggttatgcg gggatgtt 268
```

<210> 363

<211> 323

<212> DNA

<213> Homo sapiens

<400> 363

```
ccttgacctt ttcagcaagt gggaagggtg aatccgtctc cacagacaag gccaggactc 60
gtttgtaccc gttgatgata gaatggggta ctgatgcaac agttgggtag ccaatctgca 120
gacagacact ggcaacattg cggacaccct ccaggaagcg agaatgcaga gtttcctctg 180
tgatatcaag cacttcaggg ttgtatagtc tgccattgtc gaacacctgc tggatgacca 240
gccc aaagga gaagggggag atgttgagca tgttcagcag cgtggcttcg ctggctccca 300
ctttgtctcc agtcttgatc aga 323
```

<210> 364

<211> 393

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(393)

<223> n = A,T,C or G

<400> 364

```
ccaagctctc catcgtcccc gtgcgcagng gctactgggg gaacaagatc ggcaagcccc 60
acactgtccc ttgcaagggt acaggccgct gcggctctgt gctggtacgc ctcatcactg 120
caccagggg cactggcatc gtctccgcac ctgtgcctaa gaagctgctc atgatggctg 180
gcatcgatga ctgctacacc tcagcccggg gctgcactgc caccctgggc aacttcgcca 240
aggccacctt tgaatgccatt tctaagacct acagctacct gacccccgac ctctggaagg 300
agactgtatt caccaagtct ccctatcagg agttcactga ccacctcgtc aagacccaca 360
```


ccagagtctc cgtgcagcgg actcaggctc cag

393

<210> 365

<211> 371

<212> DNA

<213> Homo sapiens

<400> 365

cctcctcaga gcggtagctg ttcttattgc cccggcagcc tccatagatg aagttattgc 60
aggagttcct ctccacgtca aagtaccagc gtgggaagga tgcaaggcaa ggcccagtga 120
ctgcgttggc ggtgcagtat tcttcatagt tgaacatata gctggagtgg tcttcagaat 180
cctgccttct gggagcactt gggacagagg aatccgctgc attcctgctg gtggacctcg 240
gccgcgacca cgctaagccg aattccagca cactggcggc cgttactagt ggatccgagc 300
tcggtaccaa gcttggcgta atcatggta tagctgtttc ctgtgtgaaa ttgttatccg 360
ctcacaattc c 371

<210> 366

<211> 393

<212> DNA

<213> Homo sapiens

<400> 366

atttcttgcc agatgggagc tctttggtga agactccttt cgggaaaagt tttttggctt 60
cttcttcagg gatggttga aggaccatca cactatcccc atccttccaa tcaactgggg 120
tggcaaccct tttttctgct gtcagctgga gagagatgac taccctgaga atctcatcaa 180
agtctctgct agtggtagct gggtagagga tagacagctt cagcttctta tcaggaccaa 240
aaacaaacac cacacgagct gccacaggca tgcccttttc atccttctct gctggatcca 300
gcatgcccaa caggatggca agctcccgat tcctatcatc gatgatggga aaaggtaact 360
tttctgtggg ctcttcacaa ttgtaagcat tga 393

<210> 367

<211> 327

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(327)

<223> n = A,T,C or G

<400> 367

ccagctctgt ctcatattg actctaaagt cttnagcagc aagacgggca ttgnnaatct 60
gcagaacgat gcgggcattg tccacagtat ttgcgaagat ctgagccctc aggtcctcga 120
tgatcttgaa gtaatggctc cagtctctga cctgggggtcc cttcttctcc aagtgcctcc 180
ggattttgct ctccagcctc cggttctcgg tctccaggct cctcactctg tccaggtaag 240
aggccaggcg gtcgttcagg ctttgcattg tctccttctc gttctggatg cctcccatc 300
ctgccagacc cccggctatc ccggtgg 327

<210> 368

<211> 306

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(306)

<223> n = A,T,C or G

<400> 368

```
ctggagaagg acttcagcag tttnaagaag tactgccaag tcatccgtgt cattgcccac 60
accagatgc gcctgcttcc tctgcgccag aagaaggccc acctgatgga gatccagggtg 120
aacggaggca ctgtggccga gaagctggac tgggcccgcg agaggcttga gcagcaggta 180
cctgtgaacc aagtgttttg gcaggatgag atgatcgacg tcatcggggg gaccaagggc 240
aaaggctaca aaggggtcac cagtcgttgg cacaccaaga agctgccccg caagaccac 300
cgagga 306
```

<210> 369

<211> 394

<212> DNA

<213> Homo sapiens

<400> 369

```
tcgaccacaca ccggaacacg gagagctggg ccagcattgg cacttgatag gatttcccg 60
cggctgccac gaaagtgcgt ttcttttgtt tctcgggttg gaaccgtgat ttccacagac 120
cettgaaata cactgcgttg acgaggacca gtctggtgag cacaccatca ataagatctg 180
gggacagcag attgtcaatc atatccctgg ttctattttt aacccatgca ttgatggaat 240
cacaggcaga ggctggatcc tcaaagtcca cattccggac ctcaactgg aacacatctt 300
tgttccttgt aacaaaaggc acttcaattt cagaggcatt ctaacaaac acggcggttag 360
ccactgtcac aatgtcttta ttcttcttgg agac 394
```

<210> 370

<211> 653

<212> DNA

<213> Homo sapiens

<400> 370

```
ccaccacacc caattccttg ctggtatcat ggcagccgcc acgtgccagg attaccgggt 60
acatcatcaa gtatgagaag cctgggtctc ctcccagaga agtggteccet cggccccgcc 120
ctggtgtcac agaggctact attactggcc tggaaaccggg aaccgaatat acaatttatg 180
tcattgccct gaagaataat cagaagagcg agcccctgat tggaaaggaaa aagacagacg 240
agcttcccca actggttaacc cttccacacc ccaatcttca tggaccagag atcttggatg 300
ttccttccac agttcaaaaag acccctttcg tcacccacce tgggtatgac actggaaatg 360
gtattcagct tcctggcact tctggtcagc aaccacagtgt tgggcaacaa atgatctttg 420
aggaacatgg ttttaggcgg accacaccgc ccacaacggc cacccccata aggcataggc 480
caagaccata cccgccgaat gtaggacaag aagctctctc tcagacaacc atctcatggg 540
ccccattcca ggacacttct gagtacatca ttctatgtca tcctgttggc actgatgaag 600
aacccttaca gttcagggtt cctggaactt ctaccagtgc cactctgaca gga 653
```

<210> 371

<211> 268

<212> DNA

<213> Homo sapiens

<400> 371

```
ctgcccagcc ccattggcg agtttgagaa ggtgtgcagc aatgacaaca agaccttcga 60
ctcttcctgc cacttctttg ccacaaagtg caccctggag ggcaccaaga agggccacaa 120
gtccacctg gactacatcg ggccttgcaa atacatcccc ccttgccctgg actctgagct 180
gaccgaattc cccctgcgca tgcgggactg gctcaagaac gtccctggta ccctgtatga 240
gagggatgag gacaacaacc ttctgact 268
```

<210> 372
<211> 392
<212> DNA
<213> Homo sapiens

<400> 372
gctggtgccc ctggtgaacg tggacctcct ggattggcag gggccccagg acttagaggt 60
ggaactggtc cccctgggtcc cgaaggagga aagggtgctg ctggtcctcc tgggccacct 120
ggtgctgctg gtactcctgg tctgcaagga atgcctggag aaagaggagg tcttggaagt 180
cctggtccaa agggtgacaa gggatgaacca ggcgggtccag gtgctgatgg tgtcccaggg 240
aaagatggcc caagggtgct tactgggtcct attgggtcctc ctggcccagc tggccagcct 300
ggagataagg gtgaagggtg tgcccccgga cttccaggta tagctggacc tcgtggtagc 360
cctggtgaga gaggtgaaac ctggtccgcg ac 392

<210> 373
<211> 388
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(388)
<223> n = A,T,C or G

<400> 373
ccaagcgctc agatcggcaa ggggcaccan ttttgatctg ccagtgacac agccccacaa 60
ccaggtcagc gatgaaggta tcttcagtct cccccgaacg atgagacacc atgacgcccc 120
aaccattggc ctgggccagc ttgcacgctt gaagagactc ggtcacggag ccaatctggt 180
tgactttgag caggaggcag ttgcaggact tctcgttcac ggccttggcg atcctctttg 240
ggttggtcac tgtgagatca tccccacta cctggattcc tgcaactggc gtgaacttct 300
gccaaagctc ccagtcaccc tgggtcaaagg gatcttcgat agacaccact gggtagtcct 360
tgatgaagga cttgtacagg tcagccag 388

<210> 374
<211> 393
<212> DNA
<213> Homo sapiens

<400> 374
ctgacgaccg cgtgaacccc tgcattgggg gtgtcactct cttccatgag acactctacc 60
agaaggcggg tgatgggcgt cccttcccc aagttatcaa atccaagggc ggtgttgtgg 120
gcatcaaggt agacaagggc gtgggtcccc tggcagggac aaatggcgag actaccacc 180
aagggttggg tgggctgtct gagcgctgtg ccagtagaaa gaaggacgga gctgacttcg 240
ccaagtggcg ttgtgtgctg aagattgggg aacacacccc ctgagccctc gccatcatgg 300
aaaatgccaa tgttctggcc cgttatgccg gtatctgccg gcagaatggc attgtgcccc 360
tcgtggagcc tgagatcctc cctgatgggg acc 393

<210> 375
<211> 394
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(394)

<223> n = A,T,C or G

<400> 375

```
ccacaaatgg cgtgggtccat gtcattcacn ttntttctgca gcctccagcc aacagacctc 60
aggaaagagg ggatgaactt gcagactctg cgcttgagat cttcaaacia gcatcagcgt 120
tttccagggc tttccagagg tctgtgagac tagccctgt ctatcaaaag ttattagaga 180
ggatgaagca ttagcttgaa gcaactacagg aggaatgcac cacggcagct ctccgccaat 240
ttctctcaga tttccacaga gactgtttga atgttttcaa aaccaagtat cacactttaa 300
tgtacatggg ccgcaccata atgagatgtg agccttgtgc atgtggggga ggaggagag 360
agatgtactt tttaaatcat gttcccccta aaca 394
```

<210> 376

<211> 392

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(392)

<223> n = A,T,C or G

<400> 376

```
ctgcccagcc cccattggcg agtttgattn ggtgtgcagc aatgacaaca agaccttcga 60
ctcttcctgc cacttctttg ccacaaagtg caccctggag ggcaccaaga agggccacaa 120
gctccacctg gactacatcg ggccttgcaa atacatcccc ccttgccctg actctgagct 180
gaccgaattc cccctgagca tgcgggactg gctcaagaac gtccctgtca ccctgtatga 240
gagggatgag gacaacaacc ttctgactga gaagcagaag ctgcgggtga agaagatcca 300
tgagaatgag aagcgccctg aggcaggaga ccacccctg gagctgctgg cccgggactt 360
cgagaagaac tataacatgt acatcttccc tg 392
```

<210> 377

<211> 292

<212> DNA

<213> Homo sapiens

<400> 377

```
caatgtttga tgcttaaccc cccaatttc tgtgagatgg atggccagtg caagcgtgac 60
ttgaagtgtt gcatgggcat gtgtgggaaa tctgctgtt cccctgtgaa agcttgattc 120
ctgccatatg gaggaggctc tggagtcctg ctctgtgtgg tccaggtcct ttccaccctg 180
agacttggct ccaccactga taccctcctt tggggaaagg cttggcacac agcaggcttt 240
caagaagtgc cagttgatca atgaataaat aaacgagcct atttctcttt gc 292
```

<210> 378

<211> 395

<212> DNA

<213> Homo sapiens

<400> 378

```
ctgctgcttc agcgaagggt ttctggcata tccaatgata aggctgccaa agactgttcc 60
aataaccagca ccagaaccag ccaactcctac tgttgagca cctgcaccaa taaatttggc 120
agcagtatca atgtctctgc tgattgcact ggtctgaaac tcccttttga ttagctgaga 180
cacaccattc tgggccctga ttttcctaag atagaactcc aactctttgc cctctagcac 240
atagccatct gctcggccac actgtcccg ccttgaagcg atgcacgcaa gaagcttgcc 300
ctgctggaac tgctcctcca ggagactgct gattttggca ttctttttcc tttcatcata 360
tttcttctga attttttaga tcgttttttg ttttaa 395
```

<210> 379
<211> 223
<212> DNA
<213> Homo sapiens

<400> 379
ccagatgaaa tgctgccgca atggctgtgg gaaggtgtcc tgtgtcactc ccaattttctg 60
agctccagcc accaccaggc tgagcagtga ggagagaaaag tttctgcctg gccctgcatac 120
tggttccagc ccacctgccc tccccttttt cgggactctg tattccctct tgggctgacc 180
acagcttctc cctttcccaa ccaataaagt aaccactttc agc 223

<210> 380
<211> 317
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(317)
<223> n = A,T,C or G

<400> 380
tcgaccacag tattccaacc ctctgtgcn tngagaagtg atggagggtg ctgacaacca 60
gggtgcagga gaacaaggtg gaccagttag gcagaatatg tatcggggat atagaccacg 120
attccgcagg ggccctctc gccaaagaca gcctagagag gacggcaatg aagaagataa 180
agaaaatcaa ggagatgaga cccaagggtc gcagccacct caacgtcggg accgccgcaa 240
cttcaattac cgacgcagac gcccgaaaaa ccctaaacca caagatggca aagagacaaa 300
agcagccgat ccaccag 317

<210> 381
<211> 392
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(392)
<223> n = A,T,C or G

<400> 381
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caagatcctg agtgacatgc gaagccaata tgaggatcat gccgagcaga accggaagga 180
tgctgaagcc tggttcacca gccggactga agaattgaac cgggaggtcg ctggccacac 240
ggagcagctc cagatgagca ggtccgaggt tactgacctg cggcgacccc ttcagggtct 300
tgagattgag ctgcagtcac agacctcggc cgcgaccacg ctaagccgaa ttccagcaca 360
ctggcgggccg ttactagtgg atccgagctc gg 392

<210> 382
<211> 234
<212> DNA
<213> Homo sapiens

<400> 382

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cctcgatgtc taaatgagcg tggtaaagga tggcgctgc tggggctctg tagatacctc 60
gggacttcat tccaatgaag cggttctcca cgatgtcaat acggcccacg ccatgcttgc 120
ccgcgacttc gttcaggtac atgaagagct ccaaggaggt ctggtgggtg gtgccatcct 180
tgacgttggt caccttcaca gggaccctt ttttgaactc catctccaga atgt 234

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<210> 383
 <211> 396
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(396)
 <223> n = A,T,C or G

```

<400> 383
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gacagacact ggcaacattg cggacaccca ggatttcaat ggtgcccctg gagattttag 180
tggtgatacc taaagcctgg aaaaaggagg tcttctcggg cccgagacca gtgttctggg 240
ctggcacagt gacttcacat ggggcaatgg caccagcacg ggcagcagac ctgcccgggc 300
ggccgctcga aagccgaatt ccagcacact ggccggccgtt actagtggat ccgagctcgg 360
taccaagctt ggcgtaatca tggtcatagc tgtttc 396

```

<210> 384
 <211> 396
 <212> DNA
 <213> Homo sapiens

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<400> 384
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ccttctcagc agcagcctgc tcttcttttt caatctcttc aggatctctg tagaagtaca 180
gatcaggcat gacctcccat ggggtgttcac gggaaatggg gccacgcatg cgcagaactt 240
cccgagccag catccaccac atcaaaccaca ctgagtgagc tcccttggtg ttgcatggga 300
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taacataaga tgcctccgtg agaggctggt ggtcag 396

```

<210> 385
 <211> 2943
 <212> DNA
 <213> Homo sapiens

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<400> 385
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cctacaccct ggacagggac agtctctatg tcaatggttt cacacagcgg agctctgtgc 180
ccaccactag cattcctggg acccccacag tggacctggg aacatctggg actccagttt 240
ctaaacctgg tccctcggtt gccagccctc tccctgggtg attcactctc aacttcacca 300
tcaccaacct gcggtatgag gagaacatgc agcaccctgg ctccagggaag ttcaacacca 360
cggagagggt ccttcagggc ctggctccctg ttcaagagca ccagtgttg ccctctgtac 420
tctggctgca gactgacttt gctcaggcct gaaaaggatg ggacagccac tggagtggat 480
gccatctgca cccaccaccc tgaccccaaa agccctaggc tggacagaga gcagctgtat 540
tgggagctga gccagctgac ccacaatatc actgagctgg gcccttatgc cctggacaac 600
gacagcctct ttgtcaatgg tttcactcat cggagctctg tgtccaccac cagcactcct 660

```

```

gggacccccca cagtgtatct gggagcatct aagactccag cctcgatatt tggcccttca 720
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gaggagaaca tgtggcctgg ctccaggaag ttcaacacta cagagagggg ccttcagggc 840
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cggtgcctgg ggtgcctttc cccagccag ggtccaaaga agcttggctg gggcagaaat 2880
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aaa 2943

```

<210> 386

<211> 2608

<212> DNA

<213> Homo sapiens

<400> 386

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gttcaagagc accagtgttg gccctctgta ctctggctgc agactgactt tgctcaggcc 60
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aagccctagg ctggacagag agcagctgta ttgggagctg agccagctga cccacaatat 180
cactgagctg ggcccctatg ccctggacaa cgacagcctc tttgtcaatg gtttcaacta 240
tcggagctct gtgtccacca ccagcactcc tgggaccccc acagtgtatc tgggagcctc 300
taagactcca gcctcgatat ttggcccttc agctgccagc catctcctga tactattcac 360
cctcaacttc accatcacta acctgcggta tgaggagaac atgtggcctg gctccaggaa 420
gttcaacact acagagaggg tccttcaggg cctgctaagg cccttgttca agaaccag 480
tgttggccct ctgtactctg gctgcaggct gaccttgctc aggccagaga aagatgggga 540

```

```

agccaccgga gtggatgcc tctgcaccca cgcacctgac cccacaggcc ctgggctgga 600
cagagagcag ctgtatttgg agctgagcca gctgaccac agcatcactg agctgggccc 660
ctacacactg gacagggaca gtctctatgt caatggtttc acccatcgga gctctgtacc 720
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cctgcgctac atggcggaca tgggccaacc cggctccctc aagttcaaca tcacagacaa 840
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tattggtcgg acacaaaaaa aaaaaaaa 2608

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<210> 387

<211> 1761

<212> DNA

<213> Homo sapiens

<400> 387

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ctgaacttca ccatcaacaa cctgcgctac atggcggaca tgggccaacc cggctccctc 60
aagttcaaca tcacagacaa cgtcatgaag cacctgctca gtcctttgtt ccagaggagc 120
agcctgggtg cacggtacac aggtgcagg gtcacgcac taaggctctg gaagaacggt 180
gctgagacac ggggtggacct cctctgcagg taggtgcaga ggaggtccac ggcacacccc 240
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ccacattcct gcctcctctg tcagaagcca caacagccat ggggtaccac ctgaagaccc 360
tcacactcaa cttcaccatc tccaatctcc agtattcacc agatatgggc aagggtcag 420
ctacattcaa ctccaccgag ggggtccttc agcactgct cagacccttg ttccagaaga 480
gcagcatggg ccccttctac ttgggttgcc aactgatctc cctcaggcct gagaaggatg 540
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tggacataca gcagctttac tgggagctga gtcagctgac ccatggtgtc acccaactgg 660
gcttctatgt cctggacagg gatagcctct tcatcaatgg ctatgcaccc cagaatttat 720
caatccgggg cgagtaccag ataaatttcc acattgtcaa ctggaacctc agtaatccag 780

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```

acccacacatc ctcagagtac atcacccctgc tgaggagacat ccaggacaag gtcaccacac 840
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<210> 388

<211> 772

<212> PRT

<213> Homo sapiens

<400> 388

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Leu Gly Pro Pro Gln Trp Thr Trp Glu His Leu Gly Leu Gln Phe Leu
      20                                25                                30

Asn Leu Val Pro Arg Leu Pro Ala Leu Ser Trp Cys Tyr Ser Leu Ser
      35                                40                                45

Thr Ser Pro Ser Pro Thr Cys Gly Met Arg Arg Thr Cys Ser Thr Leu
      50                                55                                60

Ala Pro Gly Ser Ser Thr Pro Arg Arg Gly Ser Phe Arg Ala Trp Ser
      65                                70                                75                                80

Leu Phe Lys Ser Thr Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu
      85                                90                                95

Thr Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala
      100                                105                                110

Ile Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu
      115                                120                                125

Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu
      130                                135                                140

Gly Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr
      145                                150                                155                                160

His Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val

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	165		170		175
Tyr Leu Gly	Ala Ser Lys Thr Pro	Ala Ser Ile Phe Gly	Pro Ser Ala		
	180	185	190		
Ala Ser His	Leu Leu Ile Leu Phe Thr	Leu Asn Phe Thr	Ile Thr Asn		
	195	200	205		
Leu Arg Tyr	Glu Glu Asn Met Trp Pro	Gly Ser Arg Lys	Phe Asn Thr		
	210	215	220		
Thr Glu Arg	Val Leu Gln Gly Leu Leu Arg	Pro Leu Phe Lys	Asn Thr		
	225	230	235	240	
Ser Val Gly	Pro Leu Tyr Ser Gly Cys Arg	Leu Thr Leu	Leu Arg Pro		
	245	250	255		
Glu Lys Asp	Gly Glu Ala Thr Gly Val	Asp Ala Ile Cys Thr	His Arg		
	260	265	270		
Pro Asp Pro	Thr Gly Pro Gly Leu Asp Arg	Glu Gln Leu Tyr	Leu Glu		
	275	280	285		
Leu Ser Gln	Leu Thr His Ser Ile Thr	Glu Leu Gly Pro	Tyr Thr Leu		
	290	295	300		
Asp Arg Asp	Ser Leu Tyr Val Asn Gly Phe Thr	His Arg Ser Ser	Val		
	305	310	315	320	
Pro Thr Thr	Ser Thr Gly Val Val Ser	Glu Glu Pro Phe Thr	Leu Asn		
	325	330	335		
Phe Thr Ile	Asn Asn Leu Arg Tyr Met	Ala Asp Met Gly Gln	Pro Gly		
	340	345	350		
Ser Leu Lys	Phe Asn Ile Thr Asp Asn	Val Met Lys His	Leu Leu Ser		
	355	360	365		
Pro Leu Phe	Gln Arg Ser Ser Leu Gly	Ala Arg Tyr Thr	Gly Cys Arg		
	370	375	380		
Val Ile Ala	Leu Arg Ser Val Lys Asn Gly	Ala Glu Thr Arg	Val Asp		
	385	390	395	400	
Leu Leu Cys	Thr Tyr Leu Gln Pro Leu Ser	Gly Pro Gly Leu	Pro Ile		
	405	410	415		
Lys Gln Val	Phe His Glu Leu Ser Gln	Gln Thr His Gly	Ile Thr Arg		
	420	425	430		
Leu Gly Pro	Tyr Ser Leu Asp Lys Asp	Ser Leu Tyr Leu	Asn Gly Tyr		
	435	440	445		
Asn Glu Pro	Gly Pro Asp Glu Pro Pro	Thr Thr Pro Lys	Pro Ala Thr		
	450	455	460		

Thr Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His
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 485 490 495
 Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val
 500 505 510
 Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro
 515 520 525
 Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly
 530 535 540
 Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val
 545 550 555 560
 Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu
 565 570 575
 Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser
 580 585 590
 Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu
 595 600 605
 Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp
 610 615 620
 Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys
 625 630 635 640
 Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe
 645 650 655
 Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys
 660 665 670
 Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe
 675 680 685
 Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr
 690 695 700
 Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln
 705 710 715 720
 Pro Thr Ser Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile
 725 730 735
 Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn
 740 745 750

Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Ala Pro His Arg Gly
 755 760 765

Gly Leu Pro Val
 770

<210> 389

<211> 833

<212> PRT

<213> Homo sapiens

<400> 389

Phe Lys Ser Thr Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr
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Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala Ile
 20 25 30

Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu Gln
 35 40 45

Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu Gly
 50 55 60

Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr His
 65 70 75 80

Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val Tyr
 85 90 95

Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala Ala
 100 105 110

Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn Leu
 115 120 125

Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr Thr
 130 135 140

Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr Ser
 145 150 155 160

Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro Glu
 165 170 175

Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg Pro
 180 185 190

Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu Leu
 195 200 205

Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu Asp
 210 215 220

Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val Pro
 225 230 235 240
 Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn Phe
 245 250 255
 Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly Ser
 260 265 270
 Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser Pro
 275 280 285
 Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg Val
 290 295 300
 Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp Leu
 305 310 315 320
 Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile Lys
 325 330 335
 Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg Leu
 340 345 350
 Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr Asn
 355 360 365
 Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr Thr
 370 375 380
 Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His Leu
 385 390 395 400
 Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser Pro
 405 410 415
 Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val Leu
 420 425 430
 Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro Phe
 435 440 445
 Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly Ala
 450 455 460
 Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val Gly
 465 470 475 480
 Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr
 485 490 495
 His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser Leu
 500 505 510
 Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu Tyr

515	520	525
Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp Pro		
530	535	540
Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys Val		
545	550	555
Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe Cys		
	565	570
		575
Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys Ala		
	580	585
		590
Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe Leu		
	595	600
		605
Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr Gln		
610	615	620
Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln Pro		
625	630	635
		640
Thr Ser Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile Thr		
	645	650
		655
Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn Tyr		
	660	665
		670
Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln Leu Phe Arg		
	675	680
		685
Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val Ser Thr Phe		
690	695	700
Arg Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser Leu Cys Asn		
705	710	715
		720
Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val Ala Ile Tyr Glu Glu		
	725	730
		735
Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu Gln Asn Phe Thr Leu		
	740	745
		750
Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe Pro Asn Arg Asn Glu		
755	760	765
Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp Ala Val Ile Leu Ile		
770	775	780
Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys Leu Ile Cys Gly Val		
785	790	795
		800
Leu Val Thr Thr Arg Arg Arg Lys Lys Glu Gly Glu Tyr Asn Val Gln		
	805	810
		815

Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu Asp Leu Glu Asp Leu
 820 825 830

Gln

<210> 390

<211> 438

<212> PRT

<213> Homo sapiens

<400> 390

Met Gly Tyr His Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn
 5 10 15

Leu Gln Tyr Ser Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser
 20 25 30

Thr Glu Gly Val Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser
 35 40 45

Ser Met Gly Pro Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro
 50 55 60

Glu Lys Asp Gly Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His
 65 70 75 80

Pro Asp Pro Val Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu
 85 90 95

Leu Ser Gln Leu Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu
 100 105 110

Asp Arg Asp Ser Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser
 115 120 125

Ile Arg Gly Glu Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu
 130 135 140

Ser Asn Pro Asp Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp
 145 150 155 160

Ile Gln Asp Lys Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp
 165 170 175

Thr Phe Arg Phe Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu
 180 185 190

Val Thr Val Lys Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val
 195 200 205

Glu Gln Val Phe Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu
 210 215 220

Gly Ser Thr Tyr Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser
 225 230 235 240
 Ser Val Tyr Gln Pro Thr Ser Ser Ser Ser Thr Gln His Phe Tyr Leu
 245 250 255
 Asn Phe Thr Ile Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro
 260 265 270
 Gly Thr Thr Asn Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu
 275 280 285
 Asn Gln Leu Phe Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys
 290 295 300
 Gln Val Ser Thr Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val
 305 310 315 320
 Asp Ser Leu Cys Asn Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val
 325 330 335
 Ala Ile Tyr Glu Glu Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu
 340 345 350
 Gln Asn Phe Thr Leu Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe
 355 360 365
 Pro Asn Arg Asn Glu Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp
 370 375 380
 Ala Val Ile Leu Ile Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys
 385 390 395 400
 Leu Ile Cys Gly Val Leu Val Thr Thr Arg Arg Arg Lys Lys Glu Gly
 405 410 415
 Glu Tyr Asn Val Gln Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu
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 Asp Leu Glu Asp Leu Gln
 435

<210> 391

<211> 2627

<212> DNA

<213> Homo sapiens

<400> 391

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tagcatcatc attattctgg ctggagcaat tgcactcatc attggctttg gtatttcagg 180
gagacactcc atcacagtca ctactgtcgc ctcagctggg aacattgggg aggatggaat 240
cctgagctgc acttttgaac ctgacatcaa actttctgat atcgtgatac aatggctgaa 300
ggaaggtggt ttaggcttgg tccatgagtt caaagaaggc aaagatgagc tgctggagca 360

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cacttctaaa ggcaagggga atgctaacct tgagtataaa actggagcct tcagcatgcc 540
ggaagtgaat gtggactata atgccagctc agagaccttg cgggtgtgagg ctccccgatg 600
gttccccag cccacagtgg tctgggcac ccaagttgac cagggagcca acttctcgga 660
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caaggacaat gactgcttga attgaggcct tgaggaaatga agctttgaag gaaaagaata 2460
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<210> 392

<211> 310

<212> PRT

<213> Homo sapiens

<400> 392

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His Ala Ser Ala His Ala Ser Gly Arg Gln Arg Gln Leu His Ser Ala
          5                      10                      15

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Ser Thr Gln Ile Arg Trp Glu Pro Ser Pro Ala Met Ala Ser Leu Gly
          20                      25                      30

```

```

Gln Ile Leu Phe Trp Ser Ile Ile Ser Ile Ile Ile Ile Leu Ala Gly
          35                      40                      45

```

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Ala Ile Ala Leu Ile Ile Gly Phe Gly Ile Ser Gly Arg His Ser Ile

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[illegible]

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<210> 393
<211> 283
<212> PRT
<213> Homo sapiens
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<400>. 393

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Met Ala Ser Leu Gly Gln Ile Leu Phe Trp Ser Ile Ile Ser Ile Ile
      5                      10                      15

Ile Ile Leu Ala Gly Ala Ile Ala Leu Ile Ile Gly Phe Gly Ile Ser
      20                      25                      30

Gly Arg His Ser Ile Thr Val Thr Thr Val Ala Ser Ala Gly Asn Ile
      35                      40                      45

Gly Glu Asp Gly Ile Leu Ser Cys Thr Phe Glu Pro Asp Ile Lys Leu
      50                      55                      60

Ser Asp Ile Val Ile Gln Trp Leu Lys Glu Gly Val Leu Gly Leu Val
      65                      70                      75                      80

His Glu Phe Lys Glu Gly Lys Asp Glu Leu Ser Glu Gln Asp Glu Met
      85                      90                      95

Phe Arg Gly Arg Thr Ala Val Phe Ala Asp Gln Val Ile Val Gly Asn
      100                     105                     110

Ala Ser Leu Arg Leu Lys Asn Val Gln Leu Thr Asp Ala Gly Thr Tyr
      115                     120                     125

Lys Cys Tyr Ile Ile Thr Ser Lys Gly Lys Gly Asn Ala Asn Leu Glu
      130                     135                     140

Tyr Lys Thr Gly Ala Phe Ser Met Pro Glu Val Asn Val Asp Tyr Asn
      145                     150                     155                     160

Ala Ser Ser Glu Thr Leu Arg Cys Glu Ala Pro Arg Trp Phe Pro Gln
      165                     170                     175

Pro Thr Val Val Trp Ala Ser Gln Val Asp Gln Gly Ala Asn Phe Ser
      180                     185                     190

Glu Val Ser Asn Thr Ser Phe Glu Leu Asn Ser Glu Asn Val Thr Met
      195                     200                     205

Lys Val Val Ser Val Leu Tyr Asn Val Thr Ile Asn Asn Thr Tyr Ser
      210                     215                     220

Cys Met Ile Glu Asn Asp Ile Ala Lys Ala Thr Gly Asp Ile Lys Val
      225                     230                     235                     240

Thr Glu Ser Glu Ile Lys Arg Arg Ser His Leu Gln Leu Leu Asn Ser
      245                     250                     255

Lys Ala Ser Leu Cys Val Ser Ser Phe Phe Ala Ile Ser Trp Ala Leu
      260                     265                     270

Leu Pro Leu Ser Pro Tyr Leu Met Leu Lys
      275                     280

```

11729.1 contg

TTAGAGAGGCACAGAAGGAAGAAGAGTTAAAAGCAGCAAAGCCGGGTTTTTTGTTTTGT
TTTTTTTTTTTTTTTTGAGATGGAGTCTCACTCTGTTGCCCAAGCTGGAGTACAACGGCA
TGATCTCAGCTCGCTGCAACCTCCGCCTCCACGTTCAAGTGATTCTCCTGCCTCAGCCTCC
CAAGTAGCTGGGATTACAGGCGCCCGCCACCAGCTCAGCTAATTTTTTTTGTATTTTAGT
AGAGACAGGGTTTACCAGGTTGGCCAGGCTGCTCTTGAACCTCCTGACCTCAGGTGATCCA
CCCGCTCGGCCTCCCAAAGTGCTGGGATTACAGGCGTGAGCCACCACGCCCCGGCCCCCAA
AGCTGTTTCTTTTTGTCTTTAGCGTAAAGCTCTCCTGCCATGCAGTATCTACATAACTGACGT
GACTGCCAGCAAGCTCAGTCACTCCGTGGTC

11729-45.21.21.cons1

TAGGATGTGTTGGACCCCTCTGTGTCAAAAAAACCTCACAAAGAATCCCCTGCTCATTACA
GAAGAAGATGCAITTTAAATATGGGTTATTTTCAACTTTTTATCTGAGGACAAGTATCCAT
TAATTATTGTGTCAGAAGAGATTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAG
GAGGTTGGCAGCAAGAACAATTTGAACATTATAAAATCAACTTTGATGACAGTAAAAATG
GCCTTTCTGCATGGGAACTTATTGAGCTTATTGAAAATGGACAGTTTAGCAAAGGCATGGA
CCGGCAGACTGTGTCTATGCCAATTAATGAAGTCTTTAATGAACCTTATATTAGATGTGTTA
AAGCAGGTTACATGATGAAAAAGCGGCCACAGACGGAAAAAAGTGGACTGAAAGATGGTT
TGTAATAAAACCAACATAATTTCTTACTATGTGAGTGAGGATCTGAAGGATAAGAAAGG
AGACATTTCTCTTGGATGAAAATTGCTGTGTAGACTCCTTGCCCTGACAAAGATGGA.AA

11729-45.21.21.cons2

TTAGAGAGGCACAGAAGGAAGAAGAGTTAAAAGCAGCAAAGCCGGGTTTTTTGTTTTGT
TTTTTTTTTTTTTTTTGAGATGGAGTCTCACTCTGTTGCCCAAGCTGGAGTACAACGGCA
TGATCTCAGCTCGCTGCAACCTCCGCCTCCACGTTCAAGTGATTCTCCTGCCTCAGCCTCC
CAAGTAGCTGGGATTACAGGCGCCCGCCACCAGCTCAGCTAATTTTTTTTGTATTTTAGT
AGAGACAGGGTTTACCAGGTTGGCCAGGCTGCTCTTGAACCTCCTGACCTCAGGTGATCCA
CCCGCTCGGCCTCCCAAAGTGCTGGGATTACAGGCGTGAGCCACCACGCCCCGGCCCCCAA
AGCTGTTTCTTTTTGTCTTTAGCGTAAAGCTCTCCTGCCATGCAGTATCTACATAACTGACGT
GACTGCCAGCAAGCTCAGTCACTCCGTGGTC

11731.1contig

TCTTTTTCTTCGATTTCTTCAATTTGTACAGTTTGATTTTATGAAGTTGTTCAAGGGCTAA
CTGCTGTGATTATAGCTTTCTCTCAGTTCTTCAAGCTGATTGTTAAATGAATCCAATTTCTG
AGAGCTTAGATGCAGTTTCTTTTCAAGAGCATCTAATTTGTTCTTTAAGTCTTTGGCATAAT
TCTTCCTTTCTGATGACTTTTATGAAGTAAACTGATCCCTGAATCAGGTGTGTTACTGAG
CTGCATGTTTTTAATTTCTTTGTTTAAATAGCTGCTTCTCAGGGACCAGATAGATAAGCTTAT
TTTGATAATCTTAAAGCTCTTTGTTGAAGTTCTTTTCAATTTCCATAATTTCCAGGTACACTGT
TTATCCAAAACCTTCTAGCTCAGTCTTTTGTGTTTCTTTCTGATTTGGACATCTTGTAGTCTG
CCTGAGATCTGCTGATGTTTTCCAATCACTCTTCCAGTTCCAGGTGGAGACTTTTCTTTCT
GGAGCTCAGCCTGACAAATGCCCTTCTTGXTCCCT

FIG. 1A

11731.2contig

AGCCAGATGGCTGAGAGCTGCAAGAAGAAGTCAGGATCATGATGGCTCAGTTTCCACAG
CGATGAATGGAGGGCCAAATATGTGGGCTATTACATCTGAAGAAGCTACTAAGCATGATA
AACAGTTTGATAACCTCAAACCTTCAGGAGGTTACATAACAGGTGATCAAGCCCGTACTTT
TTTCTACAGTCAGGTCTGCCGGCCCCGGTTTTAGCTGAAATATGGGCCCTTATCAGATCTG
AACAAGGATGGGAAGATGGACCAGCAAGAGTTCTCTATAGCTATGAAACTCATCAAGTTA
AAGTTGCAGGGCCAAACAGCTGCCCTGTAGTCTCCCTCTATCATGAAACAACCCCTATGT
TCTCTCCACTAATCTCTGCTCGTTTTGGGATGGGAAGCATGCCCAATCTGTCCATTCATCAG
CCATTGCCCTCCAGTTGCACCTATAGCAACACCCCTTGTCTTCTGCTACTTCAGGGACCAGTAT
TCCTCCCCTAATGATGCCTGCTCCCCTAGTGCCTTCTGTTAGTA

11734.1contig

AATAGATTTAATGCAGAGTGTCAACTTCAAATTGATTGATAGTGGCTGCCTAGAGTGGCTGTG
TTGAGTAGGTTTCTGAGGATGCACCCTGGCTTGAAGAGAAAGACTGGCAGGATTAACAAT
ATCTAAAATCTCACTTGTAGGAGAAACCACAGGCACCAGAGCTGCCACTGGTGTGGCAC
CAGCTCCACCAAGGCCAGCGAAGAGCCCCAAATGTGAGAGTGGCGGTCAAGGTGGCACCAG
CACTGAAGCCACCCTGGTGTCTGGCACTGCCACTGGCACTGTTATTGGTACTGGTACTGGC
ACCACTGCTGGCACTGCCACTCTCTTGGGCTTTGGCTTTAGCTTCTGCTCCCGCTGGATCC
GGGCTTTGGCCAGGGTCCGATATCAGCTTCGTCCCAAGTTGCAGGGCCCCGGCAGCATTCTC
CGAGCCGAGCCCCAATGCCCAATCGAGCTCTAATCTCGCCCTAGCCTTGGCTTCAGCTGCA
GCCTCAGCTGCAGCCTTCAAATCCGCTTCCATCGCCTCTCGGTAC

11734.2contig

CCCAAGAAAGCCCCAAAGGTGAAGCATCTGGATGGGGAAGAGGATGGCAGCAGTGATCA
GAGTCAGGCTTCTGGAACCAAGGTGGCCGAAGGGTCTCAAAGGCCCTAATGGCCTCAAT
GGCCCGCAGGGCTTCAAGGGGTCCCATAGCCTTTTGGGCCCGCAGGGCATCAAGGACTCG
GTTGGCTGCTTGGGCCCGGAGAGCCTTGGTCTCCCTGAGATCACCTAAAGCCCGTAGGGGC
AAGCCTCGCCGTAGAGCTGCCAAGGTCCAGTCAATCCAAAGAGCCTGAAGCACCACCCT
CGGGATGTGGCCCTTTTGAAGGGAGGGGCAATGATTTGGTGAAGTACCTTTTGGCTAAAG
ACCAGACGAAGATTCCCATCAAGCCCTGGGACATGCTGAAGGACATCATCAAAGAATACA
CTGATGTGTACCCCGAAATCAATTGAACGAGCAGGCTATTCTTGGAGAAGGTAATTTGGGAT
TCAATTGAAGGAAATTGATAAGCAATGACCCTTGTACATTCTTCTCAGC

11736.1contg

GAGGTCTCACTATGTTGCCAGGCTGTTCTTGAACCTCCTGGGATCAAGCAATCCACCCATG
TTGGTCTCCAAAAGTGCTGGGATCATAGGCGTGAGCCACCTCACCCAGCCACCAATTTTCA
ATCAGGAAGACTTTTCTTCTTCAAGAAGTGAAAGGTTTCCAGAGTATAGCTACACTATT
GCTTGCCTGAGGGTGACTACAAAATTGCTTGGCTAAAAGGTTAGGATGGGTAAAGAATTAG
ATTTTCTGAATGCAAAAATAAAAATGTCAACTAATGAACCTTATAGGTAATACATAATCATAAA
ATAATTATTACATAATTCCTGATTTATCACAGAAATAATGTATGAAATGCTTTGAGTTTCT
TGGAGTAAACTCCATTACTCATCCCAAGAAACCATAATTATAAGTATCACTGATAATAAGAA
CAACAGGACCTTGTCAATAATTCCTGGATAAGAGAAATAGTCTCTGGGTGTTTGXTCTTAAT
TGATAAAAATTACTTGTCCATCTTTAGTTGAGAATCACAAA

FIG. 1B

11736.2.contig

AAGCGGAAATGAGAAAGGAGGGGAAAATCATGTGGTATTGAGCGGAAAACCTGCTGGATGA
CAGGGCTCAGTCCTGTTGGAGA.AACTCTGGGTGGTGTAGAACAGGGCCACTCACAGTG
GGGTGCACAGACCAGCACGGCTCTGTGACCTGTTTGTACAGGTCCATGATGAGGTAAAC
AATACACTGAGTATAAGGGTTGGTTTAGAAACTCTTACAGCAATTTGAC.AAAGTAATCTTC
TGTGCAGTGAATCTAAGAAAAAAATTGGGGCTGTATTTGTATGTTCTTTTTTCATTTTCAT
GTTCTGAGTTACCTATTTTTATTGCA.TTTTACAAAAGCATCCTTCCATGAAGGACCGGAAGT
TAAAAACA.AAGCAGGTCTTTATCACAGCACTGTCTGTAAGAACACAGTTCAGAGTTATCCAC
CCAAGGAGCCAGGGAGCTGGGCTAAACCAAGAATTTTGCTTTTGGTTAATCATCAGGTA
CTTGAGTTGGAATTGTTTTAATCCCATCATTACCAGGCTGGAXGTG

11739-1&2

CCGCGGGCTCCTGTCCAGACCCTGACCCTCCCTCCCAAGGCTCAACCGTCCCCCAACAACCG
CCAGCCTTGTAAGCA.AAAGGTTGGACA.AACTACTTTTCCAGAACAGAAAGGAACTCATGCA
GAGACATTCAAGCA.AAAGGTTGGACA.AACTACTTTTCCAGAACAGAAAGGAACTCATGCA
CAGAAAAGGTGACTAATAAAGGTACCAGAAAGATATGGCTGCACAAATACC.AGAATCTGA
TCAGATAAAACAGTTTAAGGA.TTTCTGGGGACCTACAATAAACTTACAGAGACCTGCTTT
TTGGACTGTGTTAGAGACTTCAC.AACAAGAGAAAGTAAACCTGAAGAGACCACCTGTTCA
GAACATTGCTTACAGAAATATTTAAAAATGACACAAAGAAATATCCATGAGATTTTACGGAA
TATCATATTCACCAGAAATGAAGCCCTGCCAGCCAAAGCAGGACTCCTTGGCCA.ACCACGA
TAGAGAAGTCTGTATGGAATGAAC.TTTGATGAAAGATTGCCA.ACAGCTGCTTTATTGGAAA
TGAGGACTCATCTGATAGAATCCCTGAAAGCAGTAGCCACCATGTTCAACCATCTGTGCA
GACTGTTTGGCA.AAATGGAA.ACCGCTGCCAGAAACAAAATTTGCTATTTACCACGAATAATCA
CAATAGAAGGTCTTATTTCTCACTGAAAATAA.AAGATGCAACATTTGTTGAGGCCTTATGA
TTCACCAGCTTGGTCACTGATTAGAAAAATAAACCATTTGTTCTTCAATTTGTGACTGTTA
ATTTTAAAGCAACTTATGTGTTGATCATGTATCAGATAGAAAAATTTTATTACTCAAAG
TAAAAATAAATGGA

11740.1.contig

GAAAAAAATATATAAACACACT.TTTGCCA.AAACGGTGGCCCTAAAAGACGAAAAGAATTT
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TGAAGCTAGCAAGTGATGATATGATAAAATAA.ACGTGGAGGAAAATAAAAACACAAGACTT
GGCATAAGATATATCCACTTTTGATA.TTAACTTGTGAAGCATATTCTTCGACAAATTTGTG
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GTAATCAGAAAAAGAAAAAGACA.TTTTCCATTTTGAGATGAACCA.AAGACACAAAAACAA
AACGAACA.AAGTGTCTAATCTAGCCTCTGAAATAAACCTTGA.ACATCTCCTACAA
GGCACCCTGATTTTTGTAA.TCTAACCTGAAGAAATGTGATGACTTTTGTGGACATGAAAA
TCAGATGAGAAAACCTGTGGTCTTTCCAAAGCCTGA.ACTCCCTGAAAACCTTTGCA

FIG. 1C

11766.1.contig

CTGGGATCATTCTCTTGATGTCATAAAAGACTCTTCTTCTTCTTCTCATCCTCTTCTTCAT
CCTCTTCTGTACAGTGCTGCCGGGTACAACGGCTATCTTTGTCTTTATCCTGAGATGAAGAT
GATGCTTCTGTTTTCTCCTACCATAACTGAAGAAATTCGCTGGAAGTCGTTTGACTGGCTGT
TTCTCTGACTTCACCTTCTTTGTCAAACCTGAGTCTTTTACCTCATGCCCTCAGCTTCCAC
AGCATCTTCATCTGGATGTTTATTTTCAAAGGGCTCACTGAGGAACTTCTGATTTCAGAG
GTCGAAGAGTCACTGTGATTTTCTCTCTCATTTTGTGCAAATTTGCCTCTTTGCTGTCTGT
GCTCTCAGGCAACCCATTTGTTGTCAATGGGGGCTGACAAAGAAACCTTTGGTTCGATTAAGT
GGCCTGGGTGTCCAGGCCCATTTATATTAGACCTCTCAGTATAGCTTGGTGAATTTCCAG
GAAACATAACACCAATTCATTGATTTAACTATTGGAATTGGTTTT

11766.2.contig

GAGGGTTGGTGGTAGCGGCTTGGGGAGGTGCTCGCTCTGTCCGTCTTGCTCTCTCGCACGC
TTCCCCCGGCTCCCTTCGTTTCCCCCCCCCGGTGCGCTGCGTGCCGGAGTGTGTGCGAGGG
AGGGGGAGGGCGTCCGGGGGGTGGGGGGAGGCGTTCGGTCCCCAAGAGACCCGCGGAG
GGAGGCGGAGGCTGTGAGGGAATCCGGGAAGCCATGGACGTGAGAGGCTCCAGGAGGC
GCTGAAAGATTTTGAGAAAGAGGGGAAAGGAAGTTGTCTGTCTGATCAGTTTCT
TTGTATGTAGCCAAGACTGGAGAAACAATGATTAGTGGTCCCAATTTAAAGGCTATTTT
ATTTCAAACCTGGAGAAAGTGAATGATGATTTTCAAGAACTTCAGCTCTGAGCCAAGAGGTC
CTCCCAACCCCTAATGTCGA

11773.2.contig

AAGCAGGCGGCTCCCGCGCTCCGAGGGCGGTGCCACCTGCCCGCCCGCCCGCTCGCTCGCT
CGCCCGCCCGCGCCCGCTGCCGACCCCTAGCATGCTGCCGAGAGTGGGCTGCCCGCGGCT
GCCGXTGCCG

11775-1&2

ATCTCTTGATGCCAAATAATTAATAAAATCTTTGAAACAAGTTTCAATGAAATAAAAAAT
CAAAGTTTGCAAAAACGTGAAGATTAATTAATTTGTCAAATAATCCTCATTTGCCCAAATC
AGTATTTTTTTTATTTCTATGCAAAAGTATGCCCTTCAAACCTGCTTAAATGATATATGATATG
ATACACAAACCAGTTTTCAAATAGTAAGCCAGTCACTTTGCAATTTGTAAGAAATAGGTA
AAAGATATAAGACACCTTACACACACACACACACACACACACAGTGTGCACGCCAATGAC
AAAAAACAAATTTGCCCTCTCCTAAAAATAAGAACATGAAGACCCTTAAATGCTGCCAGGAG
GGAACACTGTGTCAACCCCTCCCTACAAATCCAGGTAGTTTCTTTAATCCAATAGCAAATCT
GGGCATATTTGAGAGGAGTGAATCTGACAGCCACGTTGAAATCCTGTGGGGAACCATTCAT
GTCCACCCACTGCTGCCCTGAAAAAATGCCAATAATTTTCCCTCCCACTTCTGCTGCTGCTG
TCTTCCACATCCTCACAATAGACCCGAGACCCGCTGGCCCTGGCTGGGCATCGCAATGCTG
GTAGAGCAAGTCAATAGGTCTCGTCTTACAGTCAACAGAAGCGATACACCAAATTCCTGCT
CGGTCAATGTCAATAACCAGAGA

FIG. 1D

11777.1&2.cons

CAGACGGGGTTCCTACTATGTTGGCTAGGCTGGTCTTGAACCTCCTGACTTCAGGTGATCTGC
CTGCCCTTGGCCTCCCAAAGTGCTGGGATTACAGGCATAAGCCACTGCGCCCGGCTGATCTG
ATGGTTTCATAAGGCTTTTCCCCCTTTTGCTCAGCACTTCTCCTTCTGCGCCCATGTGAAG
AAGGACATGTTTGTCTCCCTTCCACCACGATTGTAAGTTGTTTCTGAGGCCCTCCCCGGCC
ATGCTGAACCTGTGAGTCAATTAACCTCTTTCTTTATAAAATTATCCAGTTTGGGTATGTC
TTTATTAGTAGAATGAGAACAGACTAATAACAACCTTAAAGGAGACTGACGGAGAGGATT
CTTCTGGATCCCAGCACTTCTCTGAAATGCTACTGACATTCTTCTTGAGGACTTTAAACTG
GGAGATAGAAAACAGATTCCATGGCTCAGCAGCTGAGAGCAGGGAGGGAGCCAAAGCTA
TAGATGACATGGGCAGCCTCCCTGAGGCCAGGTGTGGCCGAACCTGGGCAGTGCTGCCAC
CCACCCACCAGGGCCAAGTCTGTCTTGGAGAGCCAAGCCTCAATCACTGCTAGCCTCA
AGTGTCCCAAAGCCACAGTGGCTAGGGGGACTCAGGGAACAGTTCCAGTCTGCCCTACTT
CTCTTACCTTTACCCCTCATACCTCCAAAGTAGACCATGTTTATGAGGTCCAAAGG

11779.2.contig

AAGCGAGGAAGCCACTGCGGCTCCTGGCTGAAAAGCGCGCCAGGCTCGGGAACAGAGG
GAACGCGAAGAACAGGAGCGGAAGCTGCAAGGCTGAAAGGGACAAAGCGAATGCGAGAGG
AGCAGCTGGCCCGGGAGGCTGAAGCCCGGGCTGAACGTGAGGCCGAGGCGCGGAGACGG
GAGGAGCAGGAGGCTCGAGACAAGGCCGAGGCTGAGCAGGAGGAGCAGGAGCGACTGCA
GAAGCAGAAAGAGGAAGCCCGAAGCCCGTCCCGGGAAGAAGCTGAGCGCCAGCGCCAGG
AGCGGGAAGAAGCACTTTCAGAAGGAGGAACAGGAGAGACAAGAGCGAAGAAGCGGCTG
GAGGAGATAATGAAGAGGACTCGGAAATCAGAAGCCCGCGAAGCCAAGAAGCAGGATGC
AAAGGAGACCCAGCTAACAAATCCCGCCAGACCTTGTGAAAGCTGTAGAGACTCGGC
CCTCTGGGCTTCCAGAAAGGAATCTATTGACAGAAAGGAAGGAGCTXGGCCCCCAXGGA

11781 & 37.cons

CTCTGTGGAAAACCTGATGAGGAATGAATTTACCAATTACCCATGTTCTCATCCCCAAGCAAA
GTGCTGGGTCTGATTACTGCCAACACAGAGAACGAAGAAGAATTTTCTCATACAGGATC
AGCAGGGCCTCATCACACTGGGCTGGATTCTACTACCCACACAGACCGCGTTTCTCTC
CAGTGTGACCTACACACTCACTGCTCTTACCAGATGATGTTGCCAGAGTCAGTAGCCATT
GTTTGTCTCCCCAAGTTCCAGGAACCTGGATTCTTTAAACTAACTGACCATGGACTAGAGG
AGATTCTTCTGCTGCGCCAGAAAGGAATTCATCCACACAGCAAGGATCCACCTCTGTTCTG
TAGCTGCAGCCACCTGACTGTTGTGGACAGAGCAGTGACCATCACAGACCTTCGATGAGC
GTTTGAGTCCAACACCTTCCAAGAACAAACAAACCAATATCAGTGTACTGTAGCCCTTAAT
TTAAGCTTTCTAGAAAGCTTTGGAAGTTTTTGTAGATAGTAGAAAAGGGGGGCATCACXTGA
GAAAGAGCTGATTTTGTATTTTCAAGTTTGAAGAAATAACTGAACATATTTTTAGGCAA
GTCAGAAAGAGAACATGCTCACCCAAAAGCAACTGTAACTCAGAAATTAAGTTACTCAGA
AATTAAGTAGCTCAGAAATTAAGAAAGAATGGTATAATGAACCCCCATATACCTTCTCTC
TGGATTACCAAATGTTAAACATTTTCTCTCAGCTATCCTTCTAAATTTCTCTCTAATTTT
AATTTGTTTATATTTACCTCTGGGCTCAATAAGGGCATCTGTCCAGAAATTTGGAAGCCAT
TTAGAAAATCTTTTGAATTTCTGTGGTTTATGGCAATATGAATGGAGCTTATTACTGGG
GTGAGGGACAGCTTACTCCATTTGACCAGATTGTTTGGCTAACACATCCCCAAGAATGATT
TTGTCAGGAATTAATGTTATTTAATAAATAATTCAGGATATTTTCTCTACAATAAAGTAA
CAAT

FIG. 1E

11781-76-87-37

CTCTGTGGAAAACCTGATGAGGAATGAATTTACCATTACCCATGTTCTCATCCCCAAGCAAA
GTGCTGGGTCTGATTACTGCAACACAGAGAACGAAGAAGAACTTTTCTCATACAGGATC
AGCAGGGCCTCATCAGACTGGGCTGGATTCATACTACCCACACAGACCGCGTTTCTCTC
CAGTGTGACCTACAGACTCAGTGTCTTACCAGATGATGTTGCCAGAGTCAGTAGCCATT
GTTTGTCCCCCAAGTTCAGGAAACTGGATTCTTTAACTAACTGACCATGGACTAGAGG
AGATTCTTCTGTGCGCCAGAAAGGATTTTATCCACACAGCAAGGATCCACCTCTGTTCTG
TAGCTGCAGCCACGTGACTGTTGTGGACAGAGCAGTGACCATCACAGACCTTCGATGAGC
GTTTGAGTCCAACACCTTCCAAGAACAACAACCAATATCAGTGTACTGTAGCCCCCTTAAT
TTAAGCTTTCTAGAAAGCTTTGGAAGTTTTGTAGATAGTAGAAAGGGGGGCATCACCTGA
GAAAGAGCTGATTTTGTATTTTCAAGTTTGAAAAGAAATAACTGAACATATTTTTAGGCAA
GTCAGAAAGAGAACATGGTCAACCAAGCAACTGTAACTCAGAAATTAAGTTACTCAGA
AATTAAGTAGCTCAGAAATTAAGAAAGAATGGTATAATGAACCCCCATATACCTTCTCTC
TGGATTACCAATTTGTTAACAATTTTCTCTCAGCTATCCTTCTAATTTCTCTCTAATTT
AATTTGTTTATATTTTGGATTTTCTGCTGCTCAATAAGGGCATCTGTGCAGAAATTTGGAAGCCAT
TTAGAAATCTTTTGGATTTTCTGCTGCTTATGGCAATATGAATGGAGCTTATTACTGGG
GTGAGGGACAGCTTACTCCATTTGACCAGATTGTTGGCTAACACATCCCCGAAGAATGATT
TTGTCAGGAATTATTGTTATTTAATAAATAATTCAGGATATTTTCTCTACAATAAAGTAA
CAATTA

11784-1 & 2

GGACGACAAGGCCATGCGGATATCGGATCCGAATTCAGCCTTTGGAAATTAATAAACCT
GGAACAGGGAAGGTGAAAGTTGGAGTGCATGCTTCCATATCTATACCTTTGTGCACAGT
TGAATCGGAAGCTGTTTGGGTTTAGGCCATCTTAGAGTTGATGGAAGAAAGCAGACAG
GAACTGGTGGGAGCTCAAGTGGCGAAGTTGGTGAATGTGGAATAACTTACCTTTGTGCTC
CACTTAAACCAGATGTGTTCCAGCTTTCTGACATGCAAGGATCTACTTTAATTCACACT
CTCATTAATAAATTTGAATAAAAGCGAATGTTTTGGCACCTGATATAATCTGCCAGGCTATG
TGACAGTAGGAAGGAATGGTTTCCCTAACAAGCCCAATGCACTGGTCTGACTTTATAAAT
TATTTAATAAAATGAACATAATC

11785.2.contig

GGCAGTGACATTCACCATCATGGGAACCACTTCCCTTTCTTCAGGATTCTCTGTAGTGG
AAGAGAGCACCCAGTGTTCGGCTGAAAACATCTGAAAGTAGGGAGAAGAACCCTAAAATA
ATCACTATCTCAGAGGGCTCTAAGGTGCCAAGAAGTCTCACTGGACATTTAAGTGCCAAC
AAAGGCATACTTTCCGAATCGCCAAAGTCAAAACTTTCTAACTTCTGTCTCTCAGAGACA
AGTGAGACTCAAGAGTCTACTGCTTTAGTGGCAACTACAGAAAAGTGGTGTACCCAGAA
AAACAGGAGCAATTAGAAATGGTTCCCAATTTCAAGCTCCGCAACAGGATGTGCTTT
CCTTTGCCCAATTAGCGTTTCTCTCTTTCTTTCTTTTATTAACCACT

FIG. 1F

11718-1&2 cons

TGCGCTGAAAA⁵AACGGCCTCCTTTACTGTTAAAATGCAGCCACAGGTGCTTAGCCGTGGG
CATCTCAACCACCAGCCTCTGTGGGGGGCAGGTGGGCGTCCCTGTGGGCCTCTGGGCCCAC
GTCCAGCCTCTGTCTCTGCCTTCCGTTCTTCGACAGTGTCCCGGCATCCCTGGTCACTTG
GTACTTGGCGTGGGCCTCCTGTGCTGCTCCAGCAGCTCCTCCAGGXGGTCGGCCCGCTTCA
CCGCAGCCTCATGTTGTGTCCGGAGGCTGCTCACGGCCTCCTCCTTCCTCGCGAGGGCTGT
CTTCACCTCCGGXGCACCTCCTCCAGCTCCAGCTGCTGGCGGGCCTGCAGCGTGGCCAGC
TCGGCCTTGGCCTGCCGCGTCTCCTCCTCARAGGCTGCCAGCCGGTCCCTCGAACTCCTGGC
GGATCACCTGGGCCAGGTTGCTGCGCTCGCTAGAAAGCTGCTCGTTCACCGCCTGEGCATC
CTCCAGCGCCCGCTCCTTCTGCCGCAACAAGGCCCTGCAGACCGAGATTCTCGCCCTCGGCCT
CCCCAAGCTGGCCCTTCAGTCCGAGCACCGCTCCTGAAGCTTCCGCTCCGACTGCTCCAG
CTCGGAGAGCTCGGCCTCGTACTTGTCCCGTAAGCGCTTGATGCGGCTCTCGGCAGCCTTC
TCACTCTCCTCCTTGGCCAGCGCCATGTGGGCTCCAGCCGGTGAATGACCAGCTCAATCT
CCTTGTCCCGGCTTTCGGATTCTTCCCTCAGCTCCTGTTCCCGGTTACGAGCCACGCC
TCCTCCTTCTGGTGGCGCCGGCCTCCCACGCTGCTCTCCAGCTCCAGCTGCTGCTTCAG
GGTATTCAGCTCCATCTGGCGGGCCTGCAGCGTGGCCA

13690.4

CAACTTATTACTTGAAATTATAATATAGCCTGTCCGTTTGCTGTTTCCAGGCTGTGATATAT
TTTCCTAGTGGTTTGACTTTAAAAATAAAGTTTAAATTTCTCCCC

13693.1

TGCAAGTCACGGGAGTTTATTTATTTAAATTTTTTCCCCAGATGGAGACTCTGTGCCCCAGG
CTGGAGTGCAATGGTGTGATCTTGGCTCACTGCAACCTCCACCTCCTGGGTTCAAGCGATT
CTCCTGCCACAGCCTCCCGAGTAGCTGGGATTACAGGTGCCCCGCCACCACACCCAGCTAAT
TTTTATATTTTAGTAAAGACAGGGTTTCCCCATGTTGGCCAGGCTGGTCTTGAACCTTCTGA
CCTCAGGTGATCCACCTGCCTCGGCCTCCCCAAAGTGTGGGATTACAGGCGTGAGCTACCC
GTCCCTGGCCAGCCACTGGAGTTTAAAGGACAGTCATGTTGGCTCCAGCCTAAGGCGGCA
TTTTCCCCCATCAGAAAGCCCGCGGCTCCTGTACCTCAAAATAGGGCACCTGTAAAGTCAG
TCAGTGAAGTCTCTCCTCTAACTGCCCCACCCGGGGCCATTGGCNTCTGACACAGCCTTGCC
AGGANGCCTGCACTGTGCAAAAGAAAAGTTCACTTCCTTTCCG

13694.1

CAGAGAATCTKAGAAAAGATGTGCGGTTTTCTTTAATGAATGAGAGAAGCCCCATTTGTATC
CCTGAATCATTGAGAAAAGCCCGCGGCTGGCGACAGCGCGGACCTAGGGATCGATCTGGAG
GGACTTGGGGAGCGTGACAGACCTCTAGCTCGAGCGCGAGGGACCTCCCGCCGGGATGC
CTGGGGAGCAGATGCACCTACTGGAAGTCAGTTGGATTACAGATTTCTCTCAGCAAGATAC
TCCTTGCCTGATAATTGAAGATTCTCAGCCTGAAAGCCAGGTTCTAGAGGATGATTCTGGT
TCTCACTTCAGTATGCTATCTCGACACCTTCTAATCTCCAGACGCACAAAGAAAATCCTG
TGTTGGATGTTGNGTCCAAATCCTTGAACAAACAGCTGGAGAAGAACGAGGAGACCGGTAA
TAGTGGGTTCAATGAACATTTGAAAGAAAACCAGGTTGCAGACCCTG

FIG. 1G

13694.2

GACTGTCTCTGAACAAGGGACCTCTGACCAGAGAGCTGCAGGAGATGCAGAGTGGTGGCAG
GAGTGGAAAGCCAAAGAACACCCACCTTCTCCCTTGAAGGAGTAGAGCAACCATCAGAAG
ATACTGTTTTATTGCTCTGGTCAAACAAGTCTTCTGAGTTGACAAAACCTCAGGCTCTGGT
GACTTCTGAATCTGCAGTCCACTTTCCATAAGTCTTGTGTCAGACAACCTGTTCTTTTGCTTC
CATAGCAGCAACAGATGCTTTGGGGCTAAAAGGCATGTCCTCTGACCTTGCAGGTGGTGG
ATTTTGCTCTTTTACAACATGTACATCTTACTGGGCTGTGCTGTACAGGGATGTCCTTGC
TGGACTGTTCTGCTATGGGGATATCTTCGTTGGACTGTTCTTCATGCTTAATTGCAGTATTA
GCATCCACATCAGACAGCCTGGTATAACCAGAGTTGGTGGTTACTGATTGTAGCTGCTCTT
TGTCCACTTCATATGGCACAAGTATTTTCTCAACATCCTGGCTCTGGGAAG

13695.1

GAAATGTATATTTAATCAATTCTCTTGAACGATCAGAACTCTRAAATCAGTTTTCTATAACAR
CATGTAATACAGTCACCGTGGCTCCAAGGTCCAGGAAGGCAGTGGTTAACACATGAAGAG
TGTGGGAAGGGGGCTGGAAACAAAGTATTTCTTCAAAAGCTTCATTCTCAAGGCCT
CAATTCAAGCAGTCAATTGTCCTTGCTTTCAAAGTCTGTGTGTGCTTCATGGAAGGTATAT
GTTTGTGCTTAAATTTGAATTGTGCCCAGGAAGGGTCTGGAGATCTAAATTCAGAGTAAG
AAAACCTGAGCTAGAACTCAGGCAATTTCTTTACAGAACTTGGCTTGCAGGGTAGAATGA
ANGGAAAGAAACTTAGAAGCTCAACAAGCTGAAGATAATCCCATCAGGCATTTCCCATAG
GCCTTGCAACTCTGTTCACTGAGAGATGTTATCTG

13695.2

AGTCTGGAGTGAGCAAAACAAGAGCAACAACAARRAGAAGCCAAAAGCAGAAGGCTCCA
ATATGAACAAGATAAAATCTATCTTCAAGACATATTAGAAGTTGGGAAAATAATTCATGT
GAACTAGACAAGTGTGTTAAGAGTGAATAAGTAAAATGCACGTGGAGACAAGTGCAATCCCC
AGATCTCAGGGACCTCCCCCTGCTGTCACCTGGGGAGTGAGAGGACAGGATAGTGCAATG
TTCTTTGTCTCTGAATTTTATGTTATATGCTCTGTAATGTTGCTCTGAGGAAGCCCCCTGGAA
AGTCTATCCCAACATATCCACATCTTATAATCCACAATAAAGCTGTAGTATGTACCCTAA
GACGCTGCTAATTGACTGCCACTTCCCAACTCAGGGGGCGGCTGCATTTTATGTAATGGGTCA
AATGATTCATTTTATGATGCTTCCCAAGGTGCTTGGCTTCTCTTCCCAACTGACAAATG
CCCAAGTTGAGAAAAATGATCATAAATTTAGCATAAACCCAGCAATCGGCGACCCC

13697.1

TAGCTGTCTTCTCACTCTTATGGCAATGACCCCATATCTTAATGGATTAAAGATAATGAAA
GTGTATTTCTTACACTCTGTATCTATCACCAGAAGCTGAGGTGATAGCCCCGCTTGTCAATTGT
CATCCATATTTCTGGCACTCAGGGGGGAAGTTTCTGGAATAATGCCAGGGAGCATGGCAGA
GGGGCAGTGCAATCTGGGGGAATGCACATTTGGCTCAGCCTGGGTAAATGAGTGATATAC
ATTACCTGTGTTACAACTCAATGCCAGCACCAGTCACAAGGCCCCACCAAAATACCAGAG
CCCAAGAAAATGATGCTGTTGATATGCTTTTCTGTGTCCCAACCCAAATCTCATCTTGA
ATTGTAAGCTCCCATAAATCCCATGTCTTCTGGGAGGGACCTGGTG

FIG. 1H

13697.2

ATCATGAGGATGTTACCAAAGGGATGGTACTAAACCATTGTATTCTGTCTGTTTTCACT
GCTTTGAAGATACTACCTGAGACTGGGTAAATTTATAAACAAAAGAGATTTAATTGACTCAC
AGTTCTGCATGGCTGAAGAGGCCTCAGGAACTTACAGTCATGGTGGAAAGGCAAAGGAGG
AGCAAGGCATGTCTTACATGTCAGTAGGAGAGAGAGCGAGAGCAGGAGAACCTGCCACTT
ATAAACCATTCAGATCTCATAACTCCCTATCATGAGAAAAACATGGAGGAAACCACCTC
ATGATCCAATCACCTCCCCCAGGTCCCTCCCTCGACACGTGGGGATTATAATTGAGGATT
AGAGGGACACAGAGACAAACCATATCATCAATTCATGAGAAATCCACCCTCATAGTCCAAT
CAGTCTCTACCAGGCCCCACCTCCAACACTGGGGATTGCAATTCAACATGAGATTTGGATG
GGGACACAGATTCAAACCATATCATAC

13699.1&2

CATGGCCTTTCTCCTTAGAGGCCAGAGGTGCTGCCCTGGCTGGGAGTGAAGCTCCAGGCAC
TACCAGCTTTCTGATTTTCCCGTTTGGTCCATGTGAAGAGCTACCACGAGCCCCAGCCTCA
CAGTGTCCACTCAAGGGCAGCTTGGTCTCTTGTCTGTCAGAGGCAGGCTGGTGTGACCTT
GGGAACTTGACCCGGGAACAACAGGTGGCCAGAGTGAAGTGTGGCCTGGCCCTCAACCT
AGTGTCCGTCTCTCTCTCTGAGCCAGTCTTGAGTTTAAAGGCCATTAAGTGTAGATA
CAAGCTCCTTGTGGCTGGAAAAACACCCCTCTGCTGATAAAGCTCAGGGGGCCTGAGGA
AGCAGAGGCCCTTGGGGGTGCCCTCTGAAGAGAGCGTCAGGCCATCAGCTCTGTCCCTC
TGGTGTCTCCACGTCTGTTCTCACCTCCATCTCTGGGAGCAGCTGCACCTGACTGGCCAC
GCGGGGGCAGTGGAGGCACAGGCTCAGGCTGGCCGGGCTACCTGGCACCTATGGCTTAC
AAAGTAGAGTTGGCCAGTTTCTTCCACCTGAGGGGAGCAGTCTGACTCCTAACAGTCTT
CCTTGGCCTGCCATCATCTGGGGTGGCTGGCTGTCAAGAAAGGCCGGGCATGCTTTCTAAA
CACAGCCACAGGAGGCTTGTAGGGCATCTTCCAGGTGGGGAAACAGTCTTAGATAAGTAA
GGTGAAGTTGCCAAGGCCCTCCAGCACCTTGTATCTTGGAGTCTCACAGCAGACTGCATGT
SAACAAGTGAACCGAAAAACATCCCTCAGTATAAAA

13703.3

CCAGAACCTCCTTCTCTTTGGAGCAATGGCGAGGCCTCTTGGAGACACAGAGGGTTTCACCT
TGGATGACCTCTAGAGAAAATGGCCAGAAGGCCACCTCTGGTCCCAACCTGCAGACCCC
ACAGCAGTCAGTTGCTCAGCCCTCTCTGTAGAAGGTCACTTGGCTCCATTGCCTGCTTCCA
ACCAATGGGCAGGAGAGAAAGCCCTTTATTTCTCGCCCAACCAATTCTCCTGTACCAGCACCT
CCGTTTTAGTCAAGYGTGTCCACCAACGGTACCGTTTACACAGTCA

13705.1

TGCATGTAGTTTTATTTATGTGTTTTGCTCTGGAACCAAGTGTCCCAGCAGCATGACTGA
ACATCACTCACTTCCCTACTTGATCTACAAGGCCAACGCCGAGAGCCCAGACCAGGATTC
CAAACACACTGCACGAGAATAATTGTGGATCCGCTGTCAAGTAAGTGTCCGTCACTGACCCA
RACGCTGTACGTGGCACAATGACTGTACAGTGCCACGTAACAGCAGTGTACTTTTCTCCCA
TGAACAGTTACCTGCCATGTATCTACATGATTCAGAACATTTTGAACAGTTAATTCTGACA
CTTGAATAATCCCATCAAAAACCGTAAAAATCACTTTGATGTTTGTAAACGACAACATAGCAT
CACTTTACGACAGAATCATCTGGAAAAACAGAACAAACGAATACATACATCTTAAAAAATG
CTGGGGTGGGCCAGGCCACAGCTTCAAGCCCTGTAATCCCAGCACTTTGGGAGGCTTAAGCG
GGTG

FIG. 11

13705.2

TGGGGCGGAAA²GAAGCCAAGGCCAAGGAGCTGGTGGCGGCAGCTGCAGCTGGAGGCCGAG
GAGCAGAGGAAGCAGAAGAAGCGGCAGAGTGTGTGGGCCTGCACAGATACCTTCACTTG
CTGGATGGAAATGAAAATTACCCGTGTCTTGTGGATGCAGACGGTGATGTGATTTCTTCC
CACCAATAACC.AACAGTGAGAAGACA.AAGGTTAAGAAAACGACTTCTGATTTGTTTTTGG
AAGTAACAAGTGCCACCAGTCTGCAGATTTGCAAGGATGTCATGGATGCCCTCATTCTGAA
AATGGCAAGAAATGAAAAAGTACACTTTAGAAAATAAAGAGGAAGGATCACTCTCAGAT
ACTGAAGCCGATGCAGTCTCTGGACAACCTCCAGATCCCACAACGAATCCCAGTGCTGGA
AAGGACGGGCCCTTCCTTCTGGTGGTGGAAACANGTCCCGGTGGTGGATCTTGAANGGAA
CCTGAANGTGGTGTACCCCGTCCAAGGCCGACCTTGGCCAC

13707.4

TCCCGCGCTCGCAGGGCNCGTGCCACCTGCCYGTCCGCCCCGCTCGCTCGCTCGCCCCGCGC
GCCGCGCTGCCGACCGYCAGCATGCTGCCGAGAGTGGGCTGCCCGCGCTGCCGCTGCCG
CCGCGCGCGCTGCTGCCGCTGCTGCCGCTGCTGCTGCTGC

13708.1&2

GGCGGGTAGGCATGGAACTGAGAAGAACGAAGAAGCTTTCACTACGTGGGGAAGAAT
GAAAAAACCAAAATTAATCGCCAAGAATCAGCAAAAGGGACAGGGAGCTCCAGCCCGAGA
GCCTATTATTAGCAGTGAGGAGCAGAACCAAGCTGATGCTGTACTATCACAGAAGACAAGA
GGAGCTCAAGAGATTGGAAAGAAAATGATGATGCCTATTTAAACTCACCATGGGCGGA
TAACACTGCTTTGAAAAGACATTTTCATGGAGTGAAAGACATAAAGTGGAGACCAAGATG
AAGTTCACCAGCTGATGACACTTCCAAAGAGATTAGCTCACCT

13709.1

TCTGAAGGTTAAATGTTTCATCTAAATACCGATAATGRTAAACACCTATAGCATAGAGTTG
TTTGAGATTAAATGAGATAATACATGTAAAAATATGTGCCTGGCATAACAGCAAGATTGTTG
TTGTTGTTGATGATGATGATGATGATGATAATAATTTTCTATCCCCAGTGCACA.ACTGCTTG
AACCTATTAGATAATCAATACATGTTTCTTGAAGTGAATCAATTTCCCCATGTTGTCTGAC
TGATGAAGCCCTACATTTTCTCTAGAGGAGATGACATTTGAGCAAGATCTTAAAGAAAAT
CAGATGCCCTTACCTGACCACTGCTTCGTGATCCCATGGCACTTTGTACATCTCTCCATTAG
CTCTCATCTCACCAGCCCATCATTATTGTAATGTGCTGCCTTCTGAAGCTTGCAGCTGGCTAC
CATCMGGTAGAATAAAAAATCATCTTTTCAAAAAATAGTGACCCTCCTTTTTTATTTGCATTT
CCCAAAGCCAAGCACCGTGGGANGGTAG

FIG. 1J

13709.2

TATGAAGAAGGGAAAAGAAGATAATTTGTGAAAGAAATGGGTCCAGTTACTAGTCTTTGA
AAAGGGTCAGTCTGTAGCTCTTCTTAATGAGAATAGGCAGCTTTCAGTTGCTCAGGGTCAG
ATTTCTTAGTGGTGTATCTAATCACAGGAAACATCTGTGGTCCCTCCAGTCTCTTTCTGG
GGGACTTGGGCCCCTTCTCAATTCATTTAATTAGAGGAAATAGAACTCAAAGTACAATTT
ACFTGTGTTTAAACAATGCCACAAAGACATGGTTGGGAGCTATTTCTTGATTTGTGTAATAAT
GCTGTTTTTGTGTGCTCATAATGGTTCCAAAAATTGGGTGCTGGCCAAAGAGAGATACTGT
TACAGAAGCCAGCAAGAAGACCTCTGTTTCATTCACACCCCCGGGGATATCAGGAATTGAC
TCCAGTGTGTGCAAATCCAGTTTGGCCTATCTTCT

13712.1&2

TGAGGGACTGATTGGTTTGTCTCTGCTATTCAATTCCCCAAGCCCCTTGTTCCTGCAGCG
TCCTCCTTCTCATTCCTTTAGTTGTACCTCTCTTTCATCTGAGACCTTTCCTTCTTGATGT
CGCCTTTTCTTCTTCTTGTCTTTTCTGATGTTCTGCTCAGCATGTTCTGGGTGCTTCTCATCT
GCATCATTCCTTTCAGATGCTGTAGCTTCTTCTCCTCTTTCTGCCTCCTTTTCTTTTCTTTT
TTTTGGGGGGCTTGTCTCTGACTGCAGTTGAGGGGGCCCCAGGGTCTGGCCTTTGAGACG
AGCCAGGAAGGCCTGCTCCTGGCCCTCTAGGGCAGCAAGCTTGGCCTTTCATTGTGATCCCA
AGACGGGCAGCCTTGTGTGCTGTTGGCCCTCACAGGCTTGGAGCAGCATCTCATCAGTCA
GAATCTTTGGGGACTTGGACCCCTGGTTGTGCTCATCACTGCAGCTCTCCAAGTCTTTGTTT
GCCTTCTCTCCACCTGAAGTCAATGTAGCCATCTTCACAAACTTCTGATACAGCAAGTTGG
GCTTGGGATGATTATAACGGCTGGTCTCTTAGAAAGGCTCCTTAATCTGTACTCCATCCTG
CCCAGTTTCCACTACCAAGTTGGCCGCACTCTTGTGAAGAGCTCATTCACCAGTGGTTT
GTGAATCTCTTGGCAGGGTCAATGCTTACCCCATGAGTGTCTTGGCTTCAGYGTACCCCTGA
GACCCTGAGTGATACCAATCTCTCTCCG

13714.1&2

GACAACATGAAATAAATCCTAGAGGCACAAAATTAAGTCAATAGAGTGTAGTCTAGTTAA
AAACTCGA.AAAATGAGCAAGTCTGGTGGCAGTGGAGGAAGGGCTATACTATAAATCCAAG
TGGCCCTCCTGATCTTAACAAGCCATGCTCATTAACACATCTCTGAACTGGACATACCAC
CTTACGCAGGAAACAGGGCTTGGAACTTCTAAGGGAAATTAACATGCACCACCCACATC
TAACCTACCTGCCGGGTAGGTACCATCCCTGCTTGGCTGAAATCAGTGCTC

13716.1&2

TTGGAATTAAATAAACCTGGAACAGGGAAGGTGAAAGTTGGAGTGAGATGTCTTCCATAT
CTATACCTTTGTGCACAGTTGAATGGGAAGTCTTTGGGTTTACGGCATCTTAGAGTTGATT
GATGGA.AAAACACAGCAAGTCTGGTGGGAGGTCAAGTGGGGAAGTTGGTGAATGTGGA
ATAACTTACCTTGTGCTCCACTTAAACCAGATGTGTTGCAGCTTTCCTGACATGCAAGGA
TCTACTTTAATTCCACACTCTCATTAATAAATTGAATAAAAGGGAAATGTTTTGGCACCTGA
TATAATCTGCCAGGCTATGTGACAGTAGGAAGGAATGGTTTCCCCTAACAAAGCCCAATGC
ACTGGTCTGACTTTATAAATTAATTAATAAATGAACATAATC

FIG. 1K

13718.2

AAACTGGACCTGCAACAGGGACATGAATTTACTGCAAGGTCTGAGCAAGCTCAGCCCTCT
ACCTCAGGGCECCACAGCCATGACTACCTCCCCAGGAGCGGGAGGGTGAAGGGGGCCTG
TCTCTGCAAGTGGAGCCAGAGTGGAGGAATGAGCTCTGAAGACACAGCACCCAGCCTTCT
CGCACCAGCCAAGCCTTAAGTGCCTGCCTGACCTGAACCAGAACCAGCTGAAGTCCCC
TCCAAGGGACAGGAAGGCTGGGGGAGGGAGTTTACAACCCAAGCCATCCACCCCTCCC
CTGCTGGGGAGAAATGACACATCAAGCTGCTAACAAATTGGGGGAAGGGGAAGGAAGAAAA
CTCTGAAAACAAAATCTTGT

13722.3

CATGCGTTTCACCACTGTTGGCCAGGCTGGTCTCGAACTCCTGGCCTCAAGCAATCCACCC
GCCTCAGCCTCCAAAAGTGCTGGGATTACAGATGTGAGCCATGGCACCATGCCAAAAGGC
TATATTCCTGGCTCTGTGTTCCGAGACTGCTTTAATCCCACTTCTCTACATTTAGATTA
AAAAATATTTTATTCATGGTCAATCTGGAACATAATTAAGTTTCCACTGAT
GTATATAGAAGGCTAAAGGCACAAATTTTATCAAAATCTAGTAGAGTAACCAAACATAAAA
TCATTAATTACTTTCAACTTAATAACTAATTGACATTCCTCAAAGAGCTGTTTTCAATCCT
GATAGGTTCTTTATTTTTTCAAAATATATTTGCCATGGGATGCTAATTTGCAATAAGGGCG
ATAATGAGAATACCCCAACTGGA

13722.4

GTTGGACCCCCAGGGACTCGAAAGACACTTCTGCCCGAGCTGTGGCGGGAGAAGCTGAT
GTTCTTTTTTATATGCTTCTGCAATCCGAATTTGATGAGATGTTTGTGGGTGTGGGAGCCAG
CCGTATCAGAAATCTTTTAGGGAAGCAAGCCGAATGCTCCTTGTGTTATATTTATTTGAT
GAATTAGATTCTGTTGGTGGGAACAGAAATGAAATCTCCAATGCATCCATATTCAGGCAGA
CCATAAATCAACTTCTTGCTGAAATGGATGGTTTTAAACCCAATGAAGGAGTTATCATAAT
AGGAGCCACAAACTTCCCAGAGGCAATAGATAATGCTTAAATACCGTCTGGTCTGTTTTGA
CATGCAAGTTACAGTTCCAAGGTCAGATGTAAAAGGTGCAACAGAAATTTGAAATGGTA
TCTCAATAAAATAAAGTTTGAATCAATCCCGTTGATCCAGAAATTATAGCCTCGAGGTACTG
GTGGCTTTTCCGAAGCAGAGTTGGGAGAAATCTT

13724-13698-13748

GCCTACAACATCCAGAAAGAGTCTACCTGCACTGGTCTCTCAGAGGTGGGATGC
AGATCTTCTGTGAAGACCCCTGACTGGTAAGACCATCACTCTCGAAGTGGAGCCGAGTGACA
CCAATGAGAAACGTCAAAGCAAAGATCCARGACAAGCAAGGCRTYCCCTCTGACCAGCAGA
GGTTGATCTTTGCCGGAAAGCAGCTGGAAGATGGDCCGACCCTGTCTGACTACAACATCC
AGAAGAGCTCYACCCTGCACCTGGTGGTCCGTCTCAGAGGTGGGATGCAATCTTCTGTGA
AGACCCCTGACTGGTAAGACCATCACTCTGAGGTGGAGCCCAAGTGACACCATCGAGAAATG
TCAAGGCCAAAGATCCAAGATAAGGAAGGCAATCCCTCCTGATCAGCAGAGGTTGATCTTTG
CTGGGAAACAGCTGGAAGATGGACCCACCTGTCTGACTACAACATCCAGAAAGAGTCCA
CTCTGCACTTGGTCTGCGCTTGAGCGGGGGGTCTAAGTTTCCCTTTTAAAGGTTTCMAC
AAATTTCAATTGCACTTTCTTCAATAAAGTTGTTGCCATTCCC

FIG. II

13730.1

GAAGTGGGGCTCTGAGCCCAAGTCATGCCCTTGTGTCCGCATCTGCCGTGTACCTCTGTGCC
TGCCCCCTCACCCCTCCCTCCTGGTCTTCTGAGCCAGCACCATCTCCAAATAGCCTATTCTT
CCTGCAAATCACACACACATGCGGGCCACACATACCTGCTGCCCTGGAGATGGGGAAGTA
GGAGAGATGAATAGAGGGCCATACATTGTACAGAAGGAGGGGCAGGTGCAGATAAAAGC
AGCAGACCCAGCGGCAGCTGAGGTGCATGGAGCACGGTTGGGGCCGGCATTGGGCTGAGC
ACCTGATGGGCCTCATCTCGTGAATCCTCGAGGCAGCGCCACAGCAGAGGAGTTAAGTGG
CACCTGGGCCGAGCAGAGCAGGAGACTGAGGGTCAGAGTGGAGGCTAAGCTGCCCTGGA
ACTCCTCAATCTTGCCTGCCCCCTAGTATGAAGCCCCCTTCTGCCCTACAATTCCTGA

13732.1

ATGGATCTTACTTTGCCACCCAGGTTGGAGTGCAGTGCTGCAATCTTGGCTCACTGCAGCC
TTAACCTCCCAGGCTCAAGCTATCCTCCTGCCAAAGCCTTCCACATAGCTGGGACTACAGG
TACACNGCCACCACACCCAGCTAAAATTTTTGTATTTTTGTAGAGACGGGATCTCGCCAC
GTTGCCAGGCTGGTCCCATCCTGACCTCAAGCAGATCTGCCACCTCAGCCCCCAACGT
GCTAGATTACAGGCGTGAGCCACCGCACCAGCCTTTGTTTTGCTTTAATGGAATCACC
AGTTCCCTCCGTGTCTCAGCAGCAGCTGTGAGAAATGCTTTGCATCTGTGACCTTTATGA
AGGGGAACCTCCATGCTGAATGAGGGTAGGATTACATGCTCCTGTTTCCCGGGGTCAAG
AAAGCCTCAGACTCCACCATGATAAGCAGGGTGAG

13732.2

ATAGGGGCTTTAAGGAGGGAAATCAGGTTCAATGAGGTGCTAAGGCCAGGGCTCTTATCC
AGTAAGACTGGGGTCTTACATGAGAAAGAGACACCCGAGGTCTTCTCTCTGCCGTGTG
AGGATGCATCAAGAAGCGCGCCCTCTGCAAGCGAAGGAGAGGGCCGACCAGAAACCGAC
ACCTTCATCTTGGACTTGCAGGCTCTAGAAGTGAAGAAATAAAGTGTCTGTTGGTTAAGCCA
CCCAGTTTGTAGTATTTCTTTATGGCTTCTTAAGCAGACTAACAAACAACACCCAAAATT
AACTGATGGCTTCGCTGTCTTCTGTAATAAATTGCTATGAGAGAACTTTTCACTCACTGTTTT
GCAGTTTCTCCCTCAGTCCCTGGTTCTTCTTCTCACATAATCCCAATTTCAATTTATAGTTC
ATGGCCCCAGGCAGAGTCAATTCACCGCCATCTCCTGAGCTAAACCAGCACCTGCTCTGCT
CACTTCTTGAAGTGGCTGCTCATCATCAGCCCTCTTGCAGAGATTTCAATTCCTCCCGTGCCA
GGTACTTCACCGACCAAGCTCA

FIG. 1M

13735.1

GGATAATGAAGTTGTTTTATTTAGCTTGGACAAAAAGGCATATTCCTCTATTTTCTTATACA
ACAAATATCCCCAAAATAAAGCAAGCATATATCTTGAATGTGTAATAATCCAGTGATA
AACAAGAGCAGTACTTTAAAAGAAAAAAATATGTATTTCTGTCAGGTAAAAATGAGAA
TCAAAACCAATTTACTCTGCTAACTCAATTTTTTGGCTTTCTTTTGGTTAAGAGAGGCAAT
GCAATACACTGAAAAAGGTTTTATCTTATCTGGCATTGGAATTAGACATATTCAAACCCC
AGCCCCATTTCCAAACTTTAAGACCACAAACAAGTAATTTACTTTTCTGAACATTGGTTTT
TTCTGGAAAAATGGGAATTATAAAATAGACTTTGCAGACTCTTATGAGATTAAATAAGATA
ATGTATGAAATTTCTTTCTTTTACTTCTTTTCTTTTGGAGATGGAGTCTCACCCCGT
CACCCAGGCTGGAGTACAGTG

13735.2

CCACTGCACTCCAGCCTGGGTGACGGAGTGAGACTCTGTCTCAAAAAACAAACAAACAA
ACAAACAAAAAACTGAAAAGGAAATAGAGTTCTCTTTCTCATATATGAATATATTTT
CAACAGATTGTTGATCACCTACCATATGCTTGGTATTGTTCTAATTGCTGGGGATACAGCA
AGAGGTTCTGCAGAACTTCATGGAGCATGAAAGTAAATAAACAAAGTTAATTTCAAGGCC
AGGCATGGTTGCTCACACCTTTAGTCCCAGCACTTTGGGAGGCTGAGGCAGGTGGATCACT
TGGGCCCAGGAGTTCAAGGCTCCAGTGAGCCAAGATTGTGCCACTACTCTCCAGGCTGGG
CAACAGAGCAAGACCCTGTCTCAGGGGCAACAAAAAGTTAATTTAGATTTTGTAAAGTG
CTGTAAAGGAAGTAAATAGGTTGATAATCAAGAGAGCACCTGAAGGCCAGGCGTGGTGCC
TCACGCCTGTGGTCTAACGCTTTGGGAAGCCCCGAGCGGGCGGATCACAAAGGTCAGGAGAA
TTTTGGCCAGGCATGGTG

13736.1

AGAATCCATTTATTGGGTTTTAACTAGTTACACAACCTGAAATCAGTTTGGCACTACTTTA
TACAGGGATTACGCCTGTGTATGCCGACACTTAAATACTGTACCAGGACCCTGCTGTGCT
TAGGTCTGTATTCAGTCAATCAGCATGTAGATACTAAAAATATACTGTAGTGTTCTTTAA
GGAAGACTGTACAGCGTGTGTTSCAAGATGACATTCACCAATTTGTGAATTTTCAACCC
ACAAGATACCTTTCACTGTATAAACTTGTATAGGCAAAACATGTGGTGTAGCAATTGAGAG
ATGCACACAAAAATGTTACATAAAAGTTGAGACATTTCTAATGATAAGTGAAGTCAAAAAA
AAAAAAACCCCACTCTCAATTTTGTAAACAGATAAAGAAAAATAATTTAAAAACACAAA
AAATGGCATTCAGTGGCTACAAAGCC

13737.1&2

CAAATATTTAATATAAAATCTTTGAAACAAGTTGAGAKGAAATAAAAAATCAAAGTTTGCAA
AAACGTGAAGATTAACTTAAATGTCAAAATATTCCTCATTTGCCCCAAATCAGTATTTTTTTA
TTTCTATGCCAAAAGTATGCCCTTCAAACCTCTTAAATGATATATGATATGATACACAAACCA
GTTTTCAATAGTAAACCCAGTCACTTGCATTTGTAAAGAAATAGGTAAAAGATTATAAG
ACACCTTACACACACACACACACACACACACACCGTGTGCACAGCCAATGACAAAAAAC
AATTTGGCCTCTCCTAAAAATAAGAACATGAAGACCCCTAATTGCTGCCAGGAGGGAACAC
TGTGTACCCCTCCCTACAATCCAGGTACTTTCTTTAATCCAATAGCAAAATCTGGGCATAT
TTGAGAGGAGTGATTCTGACAGCCACSETTGAAATCCTGTGGCGGAACCAATTCATGTCCACC
CACTGGTGGCCTGAAAAAATGCCAATAATTTTTCGCTCCCACCTTCTGCTGCTGTCTCTTCCA
CATCCTCACATAGACCCCAAGACCCGCTGGCCCTGGCTGGGCATCGCAATGCTGGTAGAGC
AAGTCATAGGTCTGCTTTGACGTACAGAAAGCGATACACCAAAATTGCCTGGTCCGTCAT
TGTCATAACCAAG

FIG. 1N

13742.1

AAACATTGAGATGGAATGATAGGGTTTCCCAGAATCAGGTCCATATTTTAACTAAATGAA
AATTATGATTTATAGCCTTCTCAAATACCTGCCATACTTGATATCTCAACCAGAGCTAATTT
TACCTCTTTACAAATTAATAAAGCAAGTAACTGGATCCACAATTTATAATACCTGTCAATT
TTTTCTGTATTAACCTCTATCATAGTTTAAAGCCTATTAGGGTACTTAATCCTTACAAATAA
ACAGGTTTAAAAATCACCTCAATAGGCCAACTGCCCTTCTGGTTTTCTTCTTTGACTAAACAAT
CTGAATGCTTAAGATTTTCCACTTTGGGTGCTAGCAGTACACAGTGTACACTCTGTATTCC
AGACTTCTTAAATTATAGAAAAAGGAATGTACACTTTTTGTATTCTTTCTGAGCAGGGCCG
GGAGGCAACATCATCTACCATGGTAGGGACTTGTATGCATGGACTACTTTA

14351.1

ACTCTGTGCCCCAGGCTGGAGCCCABTGGMCGGATCTCGACTCCCTGCAAGCTMCGCCTC
ACAGGWTCAATGCCATTCCTCTGCCTCAGCATCTGGAGTAGCTGGGACTACAGGCGCCAGC
CACCATGCCCCAGCTAATTTTT

14351.2

ACCTTAAAGACATAGGAGAAATTAATACTGGGAGAGAAAAGCTTACAAATGTAAGGTTTTCTG
ACAAGACTTTGGGAGTGATTCACACCTGGAAACAACATACTGGACTTCACACTGGABAGAAA
CCTTACAAGTGTAATGAGTGTGGCAAAAGCCTTTGGCAAGCAGTCAACACTTATTCACCATC
AGGCAATTC

14354.2

AGTCAGGATCATGATGGCTCAGTTTCCCACAGCGATGAATGGAGGGCCAAATATGTGGGC
TATTACATCTGAAGAACCTACTAAGCATGATAAACAGTTTGATAACCTCAAACCTTCAGGA
GGTTACATAACAGGTGATCAAGCCCCCTACTTTTTCTACAGTCAGGTCTGCCGCCCCCGG
TTTTAGCTGAAATATGGGCCCTTATCAGATCTGAACAAGGATGGGAAGATGGACCAGCAAG
AGTTCTCTATAGCTATGAAACTCATCAAGTTAAAGTTGCAGGGCCAAACAGCTGCCTGTAGT
CCTCCCTCCTATCATGAACAACCCCCCTATGTTCTCTCCACTAATCTCTGCTCGTTTTGGGA
TGGGAAGCATGCCCCAATCTGTCCAATCATCAGCCATTGCCTCCAGTTGCACCTATAGCAAC
ACCCTTGTCTTCTGCTACTTCAGGGACCAGTATTCCTCCCTAATGATGCCTCCT

14354.1

CTTTCGATTTCTTCAAATTTCTCAGCTTTGATTTTATGAAGTTGTTCAAGGGCTAACTGCTG
TGTATTATAGCTTTCTCTGAGTTCTTCAGCTGATTTGTTAAATGAATCCATTTCTGAGAGCT
TAGATGCAGTTTCTTTTTCAAGAGCATCTAAATGTTCTTTAAGTCTTTGGCATAATTCTTCC
TTTTCTGATGACTTTCTATGAAGTAACTGATCCCTGAATCAGCTGTGTTACTGAGCTGCAT
GTTTTTAATTCCTTTGTTTAAATACCTGCTTCTCAGGGACCAGATAGATAAGCTTAATTTTGAT
ATTCCTTAAGCTCTTGGTGAAGTTGTTTGGATTTCCATAATTTCCAGGTACACTGGTTATCC
CAAACCTTC

FIG. 1P

16431.1.2

GTGGAGGTGAAACGGAGGCAAGAAAGGGGGCTACCTCAGGAGCGAGGGACAAAGGGGGC
GTGAGGCACCTAGGCCGCGGCACCCCGGCGACAGGAAGCCGTCTGAACCGGGCTACCGG
GTAGGGGAAGGGCCCGCGT.AGTCTCTGCAGGGCCCCAGAGCTGGAGTCGGCTCCACAGCC
CCGGCCGTCGGCTTCTCACTTCCTGGACCTCCCCGGCGCCCGGGCTGAGGACTGGCTCG
GCGGAGGGAGAAAGGAAACAGACTTGACAGCTCCCCGTTGTCTCGCAACTCCACTGCC
GAGGAACCTCTCATTTCTTCCCTCGCTCCTTACCCCCACCTCATGTAGAAAGGTGCTGAA
GCGTCCGGAGGGAAGAAGAACCTGGCTACCGTCTTGGCCTTCCCMCCCCCTTCCCGGGG
CGCTTGGTGGGCGTGGAGTTGGGGTGGGGGGTGGGTGGGGGTCTTTTTTGGAGTGCT
GGGGAACTTTTTCCCTTCTTACAGGT.CAGGGAAAGGGAATGCCAATTCAGAGAGACAT
GGGGGCAAGAAGGACGGGAGTGGAGGAGCTTCTGGAACCTTTCAGCCGTATCGGGAGG
CGG.CAGCTCTAACAGCAGAGAGCGT.CACCGCTTGGTATCGAAGCACAAGCGGCATAAGTC
CAAACACTCCAAAGACATGGGGTGGTGACCCCGAAGCAGCATCCCTGGGCACAGTTAT
CAAACCTTTGGTGGAGTATGATGATATCAGCTCTGATTCCGACACCTTCTCCGATGACATG
GCCTTCAAACCTAGACCGAAGGGAGAACGACGAACGTCGTGGATCAGATCGGAGCGACCGC
CTGCACAAACATCGTCAACCACGACACAGGCGTTCGGGGACTTACTAAAAGCTAAACAG
ACCG

16432-1

GACATGTTTGCTGCAGGGGACCAGACACAATGGGATTAGCCAGTGCTCACTGTTCTTTAT
GCTTCCAGAGAGGATGGGGACAGCTCTCAGGT.CAGAATCCAGGCTGAGAAGGCCATGCTG
GTTGGGGGCCCCCGGAAGCAGCGTCCGGATCCTCCCTGGC.ATCAGCGTAGACCCGCTGCTC
AGGCTTGGGGTACCAAACTCATGCTCTGTACTGTTTTGGCCCCATGCGGTGAGAGGAAAAC
CTAGAAAAAGATTGCTCGTCTAAGGAATCAGCTGCCCCCTCATCTCCGCATCCAATGCT
GGTGACAACATATTCCTCTCTCCAGGACACAGACTCGGTGACTCCACACTGGGCTGACTGG
CCTCTGGAGGCTCGTGGCCTAAGGCAGGGCTCCGTAAGGCTGATCGGCTGAACCTGGGTGG
GGTGAGGGTTTTCTGACCCTTCCCTTCCCA.TCCCATAAACCGCTGTCAATGAGCTCACACTGT
GGTCA

16432-2

GATGGCATGGTCGTTGCTAA.TGTGCTCTCTGGGATGGAGCACTTCTCTCTGTGAGCCCAGG
GGACCCGCTGTCCCTGGAGCTTGGGGCAAGGAGGGAAGAGTGATACCAGGAAGGTGGG
GCTGCAGCCAGGGGCCAGAGTCAGTTCAGG.CAGTGGTCTCTCCGCCCTCAAAGCTCTCCG
GGGACTGCTCAGGAGTGATGGTGGCCTGGAGTTGCCCA.AACTTCCCTGGCCACCCTGGAA
GGTGCCTGGCTGCTCCAGGCCTCTAGGCTGGGCTGATGGGTTTTCTCCAGGACACAAGTATC
ATTAAAGCCACCCTCTCCTCAGCTTGT.CAGGCGGCACATGTGGGAC.AGGCTGTGCTCACAA
CCCCCTGGCCTGGCCTGCCCTCCATCAGGACGAGCCAGTGGAAACCTTCGGAAAGCTCCCAG
CATCT.CAGCAGCCCTCAA.AAGTCTCTCTGGGCAAGCTCTGCTCTCTGACTGGAGGTCA
TCTGGGCTTGGCCTGCTCTCTCTCC

17184.3

TAAAAAAGTGTAACA.AAGGTTTATTAGACTTTCTTCATGCCCCCAGATCCAGGATGTCTA
TGTA.AACCGTTATCTTACAA.AGAAAGCACAATATTTGGTATAAACTAAGTCACTGACTTGC
TTAACTGAAATAGCGTCCATCCA.AAAGTGGGTTAAGGTAA.AACTACCTGACGATATTGGC
GGGGATCCTGCAGTTTGGACTGCTTCCCGGGTTTTGTCCAGGCTTCCGGCTCTGTTCTTGGC
ACTCATGGGGACAGGCATCCTGCTCGTCTGTGGGGCCCCGCTGGAGCCCTTACGTGAAGCT
GAAGGTATCG.ACCSTAGGGGGCTCTAGGGCAGTGGGACCTTCATCCGGA.ACTAACAAGGG
TCGGGGAGAGGCCTCTTGGGCTATGTGGC

FIG. 1Q

17184.4

CAAGCGTTCCTTTATGGATGTAAATTCAAACAGTCATGCTGAGCCATCCCGGGCTGACAGT
CACGTTWAAGACACTAGGTGCGGCGCCACAGTGCCACCCAAGGAGAAGAAGAAATTTGGA
ATTTTTCCATGAAGATGTACGGAATCTGATGTTGAATATGAAAATGGCCCCAAATGGAA
TTCCAAAAGGTTACCACAGGGGCTGTAAAGACCTAGTGACCCTCCTAAGTGGGAAAGAGGA
ATGGAGAAATAGTATTTCTGATGCATCAAGAACATCAGAATATAAACTGAGATCATAATG
AAGGAAAATTCATATCCAATATGAGTTTACTCAGAGACAGTAGAACTATTCCCAGG

17185.1

TAGGAATAACAAATGTTTATTCAGAAATGGATAAGTAATACATAATCACCCCTTCATCTCTT
AATGCCCCCTTCCTCTCCTTCTGCACAGGAGACACAGATGGGTAAACATAGAGGCATGGGAA
GTGGAGGAGGACACAGGACTAGCCACCACCTTCTCTTCCCGGTCTCCCAAGATGACTGCT
TATAGAGTGGAGGAGGCAAAACAGGTCCCCTCAATGTACCAGATGGTCACCTATAGCACCA
GCTCCAGATGGCCACGTGGTTGCACTGGAATCAATGAACTCTGTGACAACCAGAAGAT
ACCTGCTTTGGGATGAGAGGGAGGATAAAGCCATGCAGGGAGGATATTTACCATCCCTAC
CCTAAGCACAGTGCAAGCAGTGAGCCCCCGGTCCCAGTACCTGAAAAACCAAGGCCTAC
TGNCTTTTGGATGCTCTCTTGGGCCAGG

17183.2

AAGCCTCCTGCCCTGGAAATCTGGAGCCCCCTTGGAGCTGAGCTGGACGGGGCAGGGAGGG
GCTGAGAGGCCAAGACCGTCTCCCTCCTCTGCTGAGCTGCTTCCCCAGCAGCCACTGCTGGGC
ACAGCAGAAACGCCAGCAGAGAAATGGGAGGGGAGAGTCTTAGCCCTGGAGCTGAGG
CTGCCTCTGGGCTGACCCGCTGCTGTACGTGGCCAGAACTGGGGTTGGCATCTGCCATCC
ATTGAGGCCACGGTGGACGAAAGGGAGGCCCAACAGAGGAAACCTATTCCTGCTGTGAC
AACACAGCCCTTGTCCCACGCCAGCCTAAGTGCAGGGAGCGTGATGAAGTCAGGCAGCCAG
TCGGGGAGGACGAGGTAATCAGCAGCAATGTACCTTGTAGCCTATGCGCTCAATGGCC
CGGAGGGGCAGCAACCCCCCGCACAGCTCAGCCAACAGCAGTGCCTCTGCAGGCACCAAG
AGAGCGATGATGGACTTGAGCCCCGTGTTT

17190.1

GTTTGGCAGAAGACATGTTTAAATAACAATTTTATATTTAAAAAATACAGCAACAATTCCTCT
ATCTGTCCACCATCTTGCCTTCCCTTCTGCGGCTGAGGCAGACAAAGGAAAGGTAATGA
GTTAGGGCCCCCAGGCGGGCTAAGTGCTATTGGCCTGCTCCTGCTCAAAGAGAGCCATA
GCCAGCTGGGCACGGCCCCCTAGCCCCCTCCAGGTTGCTGAGGCGGCAGCGGTGGTAGAGT
TCTTACTGAGCCGTGGGCTGCAGTCTCCAGGGAGAACTTCTGCACCAGCCCTGGCTCTA
CGCCCEGAAAGAGGTTGGAGCCCTGAGAAACGGGAGGAAAACATCCATCACCTCCAGCCCCCT
CCAGGGCTTCTCCTCTTCTGGGCTGCCAGTTACCTGCCAGCCGGGCTCGGGCCGCCAG
GTAGTCAGCCTTGTAGAAGCAGCCCTCCCGCAGAAGCCTGCCGGTCAAATCTCCCCGCTATA
GGAGCCCCCGGGAGGGGTCAGCACC

FIG. 1R

17190.2

CAAGTTGAACGTCAGGCTTGGCAGAGGTGGAGTGTAGATGAAAACAAAGGTGTGATTATG
AAGAGGATGTGAGTCCTTTGGGTGTAGGAGAGAAAAGGCTGTTGAGCTTCTATTTCAAGAT
ACTTTTACCTGTGCAAAAAGCACATTTTCCACCTCCTTCTCATGGCATTGTGTAAAGGTGAG
TATGATTTCCTATTCCATCTGCATTTTAGAGGTGAAGAATAACGTACAAGGGATTCAAGTGAT
TAGCAAGGGGACCCCTCACTAAGTGTTGATGGAGTTAGGACAGAGCTCAGCTGTTTGAATCT
CAGAGCCCAGGCAGCTGGAGCTGGGTAGGATCCTGGAGCTGGCACTAATGTGAGGTGCAT
TCCCTCCAACCCAGGCTCAGATCCGGAACCTGACCGTGCTGACCCCCGAAGGGGAGGCAG
GGCTGAGCTGGCCCGTTGGGCTCCCTGCTCCTTTCACACCACACTCTCGCTTTGAGGTGCTG
GGCTGGGACTACTTCACAGAGCAGC

17191.2&89.2

TGGCCTGGGCAGGATTGGGAGAGAGGTAGCTACCCGGATGCAGTCCTTTGGGATGAAGAC
TATAGGGTATGACCCCATCATTTCCCCAGAGGTCTCGGCCTCCTTTGGTGTTGAGCAGCTG
CCCCTGGAGGAGATCTGGCCTCTCTGTGATTTCACTGTGCACACTCCTCTCCTGCCCTC
CAGGACAGGCTTGCTGAATGACAACACCTTTGCCCAGTGCAAGAAGGGGGTGCGTGTGGT
GAACTGTGCCCCGTGGAGGGATCGTGGACGAAGGCCCTGCTCCGGGGCCCTGCAGTCTGG
CCAGTGTGCCGGGGCTGCACTGGACGTGTTTACGGAAGAGCCGCCACGGGACCGGGCCTT
GGTGGACCATGAGAAATGTATCAGCTGTCCCCACCTGGGTGCCAGCACCAAGGAGGCTCA
GAGCCGCTGTGGGGAGGAAAATTGCTGTTTCACTTCGTGGACATGGTGAAGGGGAAATCTCT
CACGGGGGTTGTGAATGCCCAGGCCCTT

FIG. 1S

AGCCAGATGGCTGAGACCTGCAAGAAGAAGTCAGGATCATGATGGCTCAGTTTCCCACAG
CGATGAATGGAGGGCCAAATATGTGGGCTATTACATCTGAAGAACGTACTAAGCATGATA
AACAGTTTGATAACCTCAAACCTTCAGGAGGTTACATAACAGGTGATCAAGCCCGTACTTT
TTTCTACAGTCAGGTCTGCCGGCCCCGGTTTTAGCTGAAATATGGGCCTTATCAGATCTG
AACAAGGATGGGAAGATGGACCACCAAGAGTTCTCTATAGCTATGAAACTCATCAAGTTA
AAGTTGCAGGGCCAAACAGCTGCCTGTAGTCCTCCCTCCTATCATGAAACAACCCCTATGT
TCTCTCCACTAATCTCTGCTCGTTTTGGGATGGGAAGCATGCCCAATCTGTCCATTATCAG
CCAATTGCCTCCAGTTGCACCTATAGCAACACCCCTTGTCTTCTGCTACTTCAGGGACCAGTAT
TCCTCCCCTAATGATGCCTGCTCCCCTAGTGCCTTCTGTAGTACATCCTCATTACCAAATG
GAACTGCCAGTCTCATTACGCTTTATCCATTCTTATTCTTCTTCAACATTGCCTCATGCA
TCATCTTACAGCCTGATGATGGGAGGATTTGGTGGTGTAGTATCCAGAAGGCCCAGTCTC
TGATTGATTTAGGATCTAGTAGCTCAACTTCCTCAACTGCTTCCCTCTCAGGGAACTCACCT
AAGACAGGGACCTCAGAGTGGGCAGTTCTCAGCCTTCAAGATTAAAGTATCGGCAAAAA
TTTAATAGTCTAGACAAAGGCATGAGCGGATACCTCTCAGGTTTTCAAGCTAGAAATGCCC
TTCTTCAGTCAAATCTCTCTCAAACCTCAGCTAGCTACTATTTGGACTCTGGCTGACATCGAT
GGTGACGGACAGTTGAAAGCTGAAGAATTTATTCTGGCGATGCACCTCACTGACATGGCC
AAAGCTGGACAGCCACTACCACTGACGTTGCCTCCCGAGCTTGTCCCTCCATCTTTCAGAG
GGGGAAGCAAGTTGATTCTGTAAATGGAACTCTGCCTTCATATCAGAAAAACAAGAAG
AAGAGCCTCAGAAGAACTGCCAGTTACTTTTGAGGACAAACGGAAAGCCAACTATGAAC
GAGGAAACATGGAGCTGGAGAAGCGACGCCAAGTGTGATGGAGCAGCAGCAGAGGGAG
GCTGAACGCCAAAGCCCAGAAAGAGAAAGGAAGAGTGGGAGCGGAAACAGAGAGAACTGC
AAGAGCAAGAATGGAAGAAGCAGCTGAGTTGGAGAAACGCTTGGAGAAACAGAGAGAG
CTGGAGAGACAGCGGGAGGAAGAGAGGAGAAAGGAGATAGAAAGACGAGAGGCAGCAA
AACAGGAGCTTGACAGACAACGGCGTTTGAATGGGAAAGACTCCGTCGGCAGGAGCTGC
TCAGTCAGAAGACCAGCGGAACAAGAACACATTGTCAGGCTGACCTCCAGAAAGAAAAGT
CTCCACCTGGAACCTGGAAGCAGTGAATGGAAAACATCAGCAGATCTCAGGCAGACTACAA
GATGTCCAAATCAGAAAGCAAACACAAAAGACTGAGCTAGAAGTTTTGGATAAACAGTGT
GACCTGGAAATTTATGGAAATCAAACAACCTCAACAAGAGCTTAAGGAATATCAAAATAAG
CTTATCTATCTGGTCCCTGAGAACCCAGCTATTAAACGAAAGAAATTAACAAATGCAGCTCA
GTAACACACCTGATTCAGGGATCAGTTTACTTCATAAAAAAGTCATCAGAAAAGGAAGAA
TATGCCAAAGACTTAAGAACAAATAGATGCTCTGAAAAAGAACTGCATCTAAGCTCT
CAGAAATGGATTCAATTAACAAATCAGCTGAAGGAACTCAGAGAAAGCTATAATACACAGC
ACTTAGCCCTTGAACAACCTTCATAAAATCAAAAGTGACAAATTAAGGAAATCGAAAGAA
AAAGATTAGAGCAAAAAAAAAAAAAA

FIG. 2A

ATGGCAGTGACATTCACCATCATGGGAACCACCTTCCCTTTTCTTCAGGATTCTCTGTAGTG
GAAGAGAGCACCCAGTGTTGGGCTGAAAACATCTGAAAGTAGGGAGAAGAACCTAAAAAT
AATCAGTATCTCAGAGGGCTCTAAGGTGCCAAGAAGTCTCACTGGACATTTAAGTGCCAA
CAAAGGCATACTTTTCGGAATCGCCAAGTCAAACTTTCTAACTTCTGTCTCTCTCAGAGAC
AAGTGAGACTCAAGAGTCTACTGCTTTAGTGGCAACTACAGAAAACCTGGTGTTACCCAGA
AAAACAGGAGCAATTAGAAAATGGTTCCAATATTTCAAAGCTCCGCAAACAGGATGTGCTT
TCCTTTGCCCATTTAGGGTTTCTTCTCTTTCCTTTCTTTTATTAACCACTA

FIG. 2B

ATATCTAGAAGTCTGGAGTGAGCAAAACAAGAGCAAGAAACAAAAAGAAGCCAAAAGCAG
AAGGCTCCAATATGAACAAGATAAATCTATCTTCAAAGACATATTAGAAGTTGGGAAAAT
AATTCATGTGAACTAGACAAGTGTGTTAAGAGTGATAAGTAAATGCACGTGGAGACAAG
TGCATCCCCAGATCTCAGGGACCTCCCCCTGCCTGTACCTGGGGAGTGAGAGGACAGGAT
AGTGCATGTTCTTTGTCTCTGAATTTTTAGTTATATGTGCTGTAATGTTGCTCTGAGGAAGC
CCCTGGAAAGTCTATCCCAACATATCCACATCTTATATTCCACAAATTAAGCTGTAGTATG
TACCTAAGACGCTGCTAATTGACTGCCACTTCGCAACTCAGGGGCGGCTGCATTTTAGTA
ATGGTCAAATGATTCACTTTTTATGATGCTTCAAAGGTGCCTTGGCTTCTCTTCCCAACT
GACAAATGCCAAAGTTGAGAAAAATGATCATAATTTTAGCATAAACAGAGCAGTCGGCGA
CACCGATTTTATAAATAAACTGAGCACCTTCTTTTTAAACAAACAAATGCGGGTTTATTTCT
CAGATGATGTTTCATCCGTGAATGGTCCAGGGAAGGACCTTTCACCTTGACTATAAGGCATT
ATGTCATCACAAGCTCTGAGGCTTCTCCTTTCCATCCTGCGTGGACAGCTAAGACCTCAGT
TTTCAATAGCATCTAGAGCAGTGGGACTCAGCTGGGGTGATTTGCCCCCATCTCCGGGG
GAATGTCTGAAGACAATTTTGTACCTCAATGAGGGAGTGGAGGAGGATACAGTGCTACT
ACCAACTAGTGGATAAAGGCCAGGGATGCTGCTCAACCTCCTACCATGTACAGGACGTCTC
CCCATTACAACCTACCCAATCCGAAGTGTCAACTGTGTCAGGACTAAGAAACCCTGGTTTTG
AGTAGAAAAGGGCCTGGAAAGAGGGGAGCCAACAAATCTGTCTGCTTCTCCTCACATTAGTC
ATTGGCAAATAAGCATTCTGTCTCTTTGGCTGCTGCCTCAGCACAGAGAGCCAGAACTCTA
TCGGGCACCAGGATAACATCTCTCAGTGAACAGAGTTGACAAGGCCTATGGGAAATGCCT
GATGGGATTATCTTCAGCTTGTGAGCTTCTAAGTTTCTTTCCCTTCATTCTACCCTGCAAG
CCAAGTTCTGTAAGAGAAATGCCTGAGTTCTAGCTCAGGTTTTCTTACTCTGAATTTAGATC
TCCAGACCCTTCTGCCCACAAATCAAAATTAAGGCAACAAACATATACCTTCCATGAAGCA
CACACAGACTTTTGAAAGCAAGGACAAATGACTGCTTGAATTGAGGCCTTGAGGAATGAAG
CTTTGAAGGAAAAGAATACTTTGTTCCAGCCCCCTTCCACACTCTTCATGTGTTAACCAC
TGCCTTCTGGACCTTGGAGCCACGGTGACTGTATTACATGTTGTTATAGAAAAGTGAATTT
AGAGTTCTGATCGTTCAAGAGAAATGATTAAATATACATTTCTA

FIG. 2C

Cell Exp	Probe 1	Exp	Probe 2	Cell M/I Element	Ratio/Well	Probe 1	5/0	A%	Probe 2	5/0	A%
017	304A Ovary Tumor		272A Dendritic Cells	422A0600 (420)	421G0196 (C11)	2383	137	50	1430	2.0	50
11	115A Ovary Tumor		S7 Ovary H	422A0626 (420)	421G0196 (C11)	355	27	54	302	1.0	54
010	261A Ovary Tumor		S10 Skeletal muscle H	422A0621 (420)	421G0196 (C11)	1290	69	51	707	1.9	51
011	264A Ovary Tumor		S2 Pancreatic H	422A0620 (420)	421G0196 (C11)	9500	440	62	1100	2.3	62
112	306A		S40	422A0605 (420)	421G0196 (C11)	510	38	50	619	2.0	50
017	265A Ovary Tumor		CT5 Head N	422A0624 (420)	421G0196 (C11)	2305	148	53	489	2.2	53
114	S25 Ovary Tumor		CT4 Bone Marrow H	422A0619 (420)	421G0196 (C11)	531	3.5	53	743	2.0	53
	307A		H	422A0609 (420)	421G0196 (C11)	1042	106	39	871	2.0	39
119	S22 Ovary Tumor		CT9 Kidney H	422A0627 (420)	421G0196 (C11)	453	3.3	60	857	3.2	60
012	9405 L-P		9405 L-P	422A0602 (420)	421G0196 (C11)	1082	12.2	57	594	2.3	57
015	302A Ovary Tumor		330A Lung Adenocarcinoma H	422A0622 (420)	421G0196 (C11)	1406	7.5	55	985	2.2	55
111	S115		CT10	422A0604 (420)	421G0196 (C11)	509	3.4	51	573	2.0	51
011	200A Ovary Tumor		CT12 Lung N	422A0625 (420)	421G0196 (C11)	706	4.5	54	651	2.1	54
010	201A Ovary Tumor		S5 Stomach N	422A0620 (420)	421G0196 (C11)	625	4.6	46	1335	3.6	46
010	S23 Ovary Tumor		S56 Spleen C/Int N	422A0620 (420)	421G0196 (C11)	3896	22.2	50	502	2.2	50
110	205A		270A	422A0606 (420)	421G0196 (C11)	2251	14.7	46	1256	2.0	46
010	0134		12	422A0601 (420)	421G0196 (C11)	552	3.4	72	1029	2.3	72
016	305A Ovary Tumor		SU1 Fetal tissue	422A0607 (420)	421G0196 (C11)	8126	35.6	50	1449	2.0	50
015	263A Ovary Tumor		S73 Fibroblast N	422A0623 (420)	421G0196 (C11)	439	3.2	61	1531	3.4	61
013	302A		CT19	422A0610 (420)	421G0196 (C11)	387	3.2	50	1270	2.1	50
010	206A		S27	422A0603 (420)	421G0196 (C11)	4242	22.2	58	883	2.0	58

FIG. 3

TCGAGCGGGCCCGGGCAGGTCCTTCAGACTTGGACTGTGTCACACTGCCAGGCTTCCAG
GGCTCCAACCTTGCAGACGGCCTGTTGTGGGACAGTCTCTGTAAATCGCGAAAGCAACCATG
GAAGACCTGGGGGAAAACACCATGGTTTTATCCACCCTGAGATCTTTGAACAACTTCATCT
CTCAGCGTGCGGAGGGAGGCTCTGGACTGGATATTTCTACCTCGGECGCGACCACGCT

FIG. 4

TAGCGYGGTCGCGGCGGAGGYCTGCTTYTCTGTCCAGCCCAGGGCCTGTGGGGTCAGGGC
GGTGGGTGCAGATGGCATCCACTCCGGTGGCTTCCCCATCTTTCTCTGGCCTGAGCAAGGT
CAGCCTGCAGCCAGAGTACAGAGGGCCAACACTGGTGTTCTTGAACAAGGGCCTTAGCAG
GCCCTGAAGGRCCCTCTCTGTAGTGTTGAACTTCCTGGAGCCAGGCCACATGTTCTCCTCAT
ACCGCAGGYTAGYGATGGTGAAGTTGAGGGTGAAATAGTATTMANGRAGATGGCTGGCA
RACCTGCCCCGGGCGGCCGCTCSAAATCC

FIG. 5

AGCGTGGTCGCGGCCGAGGTGTCCTTCAGGGTCTGCTTATGCCCTTGTTCAAGAACACCAG
TGTCAGCTCTCTGTACTCTGGTTGCAGACTGACCTTGCTCAGGCCTGAGAAGGATGGGGCA
GCCACCAGAGTGGATGCTGTCTGCACCCATCGTCCTGACCCCAAAAGCCCTGGACTGGACA
GAGAGCGGCTGTACTGGAAGCTGAGCCAGCTGACCCACGGCATCACTGAGCTGGGCCCCT
ACACCCTGGACAGGGACAGTCTCTATGTC.AATGGTTTCACCCATCGGAGCTCTGTACCCAC
CACCAGCACCGGGGTGGTCAGCGAGGAGCCATTCAACCTGCCCCGGGCGGCCGCTCGA

FIG. 6

27 / 92

A

TTGGGGNTTT MGAGCGGGCCGCGGGCAGGTACCGGGGTGGTCAGCGAGGAGCCATTAC
ACTGAACTTCACCATCAACAACCTGCGGTATGAGGAGAACATGCAGCACCCCTGGCTCCAG
GAAGTTCAACACCCACGGAGAGGGTCTTCAGGGCCTGCTCAGGTCCCTGTTCAAGAGCAC
CAGTGTGGGCTCTGTACTCTGGCTGCAGACTGACTTTGCTCAGACTTGAGAAACATGGG
GCAGCCACTGGAGTGGACGCCATCTGCACCCTCCGCCTTGATCCCCTGGTCTGGACTGG
ACAGAGAGCGGCTATACTGGGAGCTGAGCCAGTCCTCTGGCGGNGACNCCNCTT

B

AGCGTGGTCGCGGGCCGAGGTCCAGTCCAGCATGCTCTTTCTCCTGCCCCACTGGCACAGTG
AGGAAGATCTCTGCTGTCAGTGAGAAGGCTGTCATCCACTGAGATGGCAGTCAAAAGTGC
ATTTAATACACCTAACGTATCGAACATCATAGCTTGGCCCAGGTTATCTCATATGTGCTCA
GAACACTTACAATAGCCTGCAGACCTGCCCGGGCGGCCGCTCGA

FIG. 7A and 7B

TGTGGTGTGAACTTCCTGGAGNCAGGGTGACCCATGTCCTCCCCATACTGCAGGTTGGTG
ATGGTGAAGTTGAGGGTGAATGGTACCAGGAGAGGGCCAGCAGCCATAATTGTSGRGCKG
SMGMSSGAGGMWGGWGTYYCWGAGGTTCYRARRTCCACTGTGGAGGTCCCAGGAGTGCT
GGTGGTGGGGACAGAGSTCYGATGGGTGAAACCAATTGACATAGAGACTGTTCTGTCCAG
GGTGTAGGGGGCCCAGCTCTTYRATGYCATTGGYCAGTTKGCTYAGCTCCCAGTACAGCCRC
TCTCKGYYGMGWCCAGSGCTTTTGGGGTCAAGATGATGGATGCAGATGGCATCCACTCCA
GTGGCTGCTCCATCCTTCTCGGACCTGAGAGAGGTCAGTCTGCAGCCAGAGTACAGAGGG
CCAACACTGGTGTTCCTTTGAATA

FIG. 8

TCGAGCGGCCGCCCCGGGCAGGTCAGGAAGCACATTGGTCTTAGAGCCACTGCCTCCTGGA
TTCCACCTGTGCTGCGGACATCTCCAGGGAGTGCAGAAGGGAAGCAGGTCAAAGTCTCA
GATCAGTCAGACTGGCTGTTCTCAGTTCTCACCTGAGCAAGGTCAGTCTGCAGCCAGAGTA
CAGAGGGCCAACACTGGTGTCTTGAACAAGGGCTTGAGCAGACCCTGCAGAACCCTCTTC
CGTGGTGTGAACTTCCTGGAAACCAGGGTGTTCATGTTTTCTCATAATGCAAGGTTG
GTGATGG

FIG. 9

Gene Name	Bal Probe's 1 Exp Name	P1	P2 Name	Probe 3	GEN ID	Probe1		Probe2		Probe1		Probe2	
						Value	%	Value	%	B/B	%	B/B	%
42100188 (03)	17.0 205A Ovary T	11	205A Liver N		42240606	8620		1240		57.7	65	2.2	65
42100188 (03)	15.9 521 Ovary Tumor	11	526 Spinal Cord N		42240628	5894		1002		35.3	89	3.9	89
42100188 (03)	15.7 485A Ovary T	11	591 Fetal Tissue		422X0607	12151		2121		54.1	71	2.8	71
42100188 (03)	15.1 426A Ovary T (tand)	11	405A Aorta N		422X0611	7487		1480		53.0	71	9.7	71
42100188 (03)	14.5 261A Ovary Tumor	11	571 Heart N		42240624	7302		2116		39.2	84	4.5	84
42100188 (03)	14.3 481A Ovary T (tand)	11	11 Colon M		42240609	3714		1114		20.4	83	2.6	83
42100188 (03)	14.0 9311 Ovary T (tand)	11	12 Skin M		422R0601	2435		814		12.1	75	2.1	75
42100188 (03)	13.6 481A Ovary T (tand)	11	222A Dendritic cell		42240608	4578		1754		25.0	69	2.3	69
42100188 (03)	13.2 261A Ovary Tumor	11	52 Pancreas M		422R0629	7904		3596		18.5	81	5.6	81
42100188 (03)	13.0 486A Ovary T	11	540 PBRM Cytical		12240605	2491		1081		14.0	90	2.9	90
42100188 (03)	13.0 517 Ovary T (tand)	11	CT40 Small intestine		12240601	1979		974		10.4	80	2.7	80
42100188 (03)	12.9 45A Ovary Tumor	11	CT5 Heart M		42240624	1911		964		13.9	91	1.4	91
42100188 (03)	12.9 428A Ovary T (tand)	11	57 Ovary T		42240636	1666		817		9.8	100	1.0	100
42100188 (03)	11.6 261A Ovary Tumor	11	214A Esophagus M		42240612	1827		3480		13.4	97	9.5	97
42100188 (03)	11.6 266A Ovary T	11	510 Stomach muscle		42240624	5914		3654		30.4	86	6.0	86
42100188 (03)	11.4 9185 T P Ovary T (tand)	11	527 Ovary T		42240603	2049		1274		11.9	50	2.6	50
42100188 (03)	11.4 262A Ovary Tumor	11	CT9 Kidney M		42240627	1746		1072		11.0	92	4.0	92
42100188 (03)	11.3 525 Ovary Tumor	11	9185 T Ovary T (tand)		42240602	4204		3074		23.0	94	7.7	94
42100188 (03)	11.2 429A Ovary T (tand)	11	11A Large Intestine		422X0622	3002		2404		16.6	89	4.0	89
42100188 (03)	11.2 482A Ovary T	11	CT1 Bone Marrow		42240619	1644		1297		9.6	90	3.1	90
42100188 (03)	11.2 288A Ovary T	11	161A Ovary M		42240614	2524		2084		22.0	65	23.9	65
42100188 (03)	11.1 201A Ovary Tumor	11	CT19 Brain M		42240610	2072		1664		10.9	88	2.3	88
			CT12 Lung M		422X0625	1840		1474		10.7	87	1.8	87
			56 Stomach M		422X0620	1329		1204		9.1	90	3.5	90

FIG. 10

Gene Name	Bal Probe 1		Probe 2		Gene ID	Probe1		Probe2	
	Exp Name	P1	P2 Name	Value		Value	B/B	A%	A%
42100181 (C4)	118.8 385A Ovary T		S91 Fetal tissue	26711	422X0607	1424	101.3	54	2.0
42100181 (C4)	111.5 S21 Ovary Tumor		S56 Spinal Cord N	13559	422X0628	1179	65.3	68	1.9
42100181 (C4)	111.1 426A Ovary T (tumor)		415A Aorta F	14125	422X0611	1273	67.3	61	5.6
42100181 (C4)	110.8 205A Ovary T		200A Liver N	16121	422Y0606	1488	93.1	43	2.3
42100181 (C4)	105.1 261A Ovary Tumor		S73 Breast N	11126	422Y0623	2215	58.2	68	4.4
42100181 (C4)	104.6 461A Ovary T (tumor)		222A Dendritic cells	6583	422Y0608	1424	24.5	40	2.1
42100181 (C4)	104.4 261A Ovary Tumor		S2 Pancreas F	9865	422Y0619	2215	40.9	64	3.6
42100181 (C4)	104.4 499A Ovary T (tumor)		161A Ovary N	2803	422Y0614	618	22.6	60	7.4
42100181 (C4)	104.2 261A Ovary Tumor		S10 Skeletal muscle	8271	422Y0621	1949	39.5	68	3.6
42100181 (C4)	103.5 511S Ovary T (tumor)		CT10 Small intestine	2281	422Y0601	607	11.6	60	2.1
42100181 (C4)	103.5 265A Ovary Tumor		CT5 Heart F	1192	422Y0624	1293	19.2	68	4.0
42100181 (C4)	103.3 22 Ovary Tumor		CT9 Kidney F	365	422Y0627	1276	3.6	70	1.9
42100181 (C4)	102.2 266A Ovary T		S77 Ovary F	2774	422Y0601	1260	14.3	46	2.7
42100181 (C4)	102.1 9111 Ovary T (SCN)		12 Skin F	1774	422Y0601	847	8.4	56	2.1
42100181 (C4)	101.9 9485 1 P Ovary TG		9485 5 P Ovary TG	6967	422Y0602	3726	41.5	70	9.2
42100181 (C4)	101.6 362A Ovary T		CT19 Brain N	2313	422Y0610	1471	6.2	50	1.9
42100181 (C4)	101.5 S25 Ovary Tumor		CT12 Lung F	1657	422Y0625	1054	9.7	69	2.9
42100181 (C4)	101.4 262A Ovary Tumor		CT14 Bone Marrow	848	422Y0619	1244	4.5	65	2.7
42100181 (C4)	101.2 466A Ovary T		111A Large Intestine	3171	422Y0622	2214	16.8	69	3.8
42100181 (C4)	101.2 355A Ovary Tumor		S40 PBMC (activated)	640	422Y0605	544	4.2	53	1.9
42100181 (C4)	101.0 201A Ovary Tumor		S7 Ovary N	592	422Y0626	740	3.7	75	2.6
42100181 (C4)	101.0 428A Ovary T (tumor)		S6 Stomach F	1197	422Y0620	1247	7.8	65	4.5
42100181 (C4)	101A Ovary T (tumor)		241A Esophagus F	783	422Y0612	797	4.5	95	2.4
			11 Colon F	3470	422Y0609	862	8.9	24	1.7

FIG. 11

Gene Name	Bal Probe 1		P1		P2 Name		GEM ID	Probe1		Probe2	
	Exp Name							Value	B/B	Value	B/B
42100182 [11/1]	06.7 426A Ovary T (incl)				415A Aorta N		422X0611	7706	46.3	462	3.5
42100182 [11/1]	06.7 205A Ovary T				270A Liver N		422X0606	10171	61.2	950	1.8
42100182 [11/1]	09.9 085A Ovary T				591 Fetal tissue		422X0607	14415	62.1	1459	2.2
42100182 [11/1]	08.8 523 Ovary Tumor				536 Spinal Cord N		422X0628	7781	47.3	880	1.1
42100182 [11/1]	06.4 081A Ovary T (incl)				11 Colon N		422X0609	4807	27.6	748	2.2
42100182 [11/1]	05.4 261A Ovary Tumor				57A Breast N		422X0623	9815	57.1	1909	4.2
42100182 [11/1]	04.9 429A Ovary T (incl)				064A Ovary N		422X0614	2661	20.3	541	6.7
42100182 [11/1]	03.5 264A Ovary Tumor				52 Pancreas N		422X0629	7914	38.8	2274	3.9
42100182 [11/1]	09.9 525 Ovary Tumor				C14 Bone Marrow		422X0619	480	3.5	1175	80
42100182 [11/1]	02.8 264A Ovary Tumor				540 Skeletal muscle		422X0621	8994	34.6	1245	69
42100182 [11/1]	02.5 5115 Ovary T (incl)				C110 Small intestine		422X0601	1864	8.1	708	2.2
42100182 [11/1]	02.4 9111 Ovary T (SA T)				P1 Skin N		422X0601	2552	12.7	1111	41
42100182 [11/1]	02.4 522 Ovary Tumor				C19 Kidney H		422X0627	889	3.2	889	69
42100182 [11/1]	02.2 081A Ovary T (incl)				97A Endothelial cells		422X0608	1516	18.7	1567	55
42100182 [11/1]	02.2 082A Ovary T				C119 Brain H		422X0610	608	4.2	1190	60
42100182 [11/1]	01.9 265A Ovary Tumor				C15 Bone H		422X0604	2064	13.6	1080	87
42100182 [11/1]	01.8 266A Ovary T				527 Ovary N		422X0603	1550	7.0	847	58
42100182 [11/1]	01.5 267A Ovary Tumor				144A Large intestine		422X0622	2559	13.2	1651	73
42100182 [11/1]	01.4 086A Ovary T				540 PPARC (activated)		422X0605	511	3.9	748	62
42100182 [11/1]	01.3 288A Ovary Tumor				C112 Tongue H		422X0605	894	5.3	1120	1.1
42100182 [11/1]	01.3 135A Ovary Tumor				S7 Ovary H		422X0626	440	3.3	567	66
42100182 [11/1]	01.2 9485 1 P Ovary T (C)				9085 1 P Ovary T (C)		422X0602	4188	21.6	3529	66
42100182 [11/1]	01.1 428A Ovary T (incl)				241A Esophagus N		422X0612	725	6.2	689	65
42100182 [11/1]	01.0 201A Ovary Tumor				S6 Stomach H		422X0620	1018	7.4	1018	62

FIG. 12

Gene Name	Bal Probe 1		P1	P2 Name	Probe 2		GEM ID	Probe1		Probe2	
	Exp Name				Name	Value		B/B	A%	Value	B/B
421V00189 (01)	11.2 426A Ovary T (tact)				415A Aorta N	422X0611	8072	55.2	67	2.4	67
421V00189 (01)	11.7 523 Ovary Tumor				S56 Spinal Cord N	42240628	7167	42.6	69	2.5	69
421V00189 (01)	12.6 429A Ovary T (tact)				461A Ovary N	42200614	2850	21.7	64	3.5	64
421V00189 (01)	18.0 485A Ovary T				S91 Fetal tissue	422X0607	11711	54.0	58	2.2	58
421V00189 (01)	17.3 261A Ovary Tumor				S71 Breast N	42210623	6949	37.8	69	2.0	69
421V00189 (01)	5.8 525 Ovary Tumor				C14 Bone Marrow	42210619	208	2.1	44	2.9	44
421V00189 (01)	15.0 205A Ovary T				270A Liver H	42200606	8676	17.7	57	2.6	57
421V00189 (01)	14.5 481A Ovary T (tact)				11 Colon N	42210609	3149	17.4	57	2.0	57
421V00189 (01)	14.4 261A Ovary Tumor				S10 Skeletal muscle	42200621	6332	29.1	77	2.9	77
421V00189 (01)	14.2 261A Ovary Tumor				S2 Pancreas H	42240629	7612	18.9	79	3.3	79
421V00189 (01)	3.2 482A Ovary T				C119 Brain H	42200610	468	3.4	60	2.3	60
421V00189 (01)	12.9 913 Ovary T (SCH)				12 Skin H	42200601	2500	12.3	51	2.1	51
421V00189 (01)	12.5 5115 Ovary T (tact)				C110 Small intestine	42200601	1424	6.7	61	2.1	61
421V00189 (01)	12.4 265A Ovary Tumor				C15 Heart H	42200634	1732	11.8	70	2.8	70
421V00189 (01)	12.1 483A Ovary T (tact)				272A Endothelial cells	42200608	3053	14.2	62	2.0	62
421V00189 (01)	11.9 266A Ovary T				S27 Ovary H	42200603	1370	7.2	47	2.0	47
421V00189 (01)	1.9 486A Ovary T				S30 F10A0 Tactival	42200605	3071	5.80	41	2.0	41
421V00189 (01)	11.7 263A Ovary Tumor				331A Large Intestine	422A0622	2097	12.2	86	2.7	86
421V00189 (01)	1.1 45A Ovary Tumor				S7 Ovary H	42200626	373	2.9	47	2.0	47
421V00189 (01)	1.1 288A Ovary Tumor				C112 Lung H	422V0625	969	10.4	72	2.9	72
421V00189 (01)	1.1 201A Ovary Tumor				S6 Stomach N	422V0620	750	6.2	62	2.4	62
421V00189 (01)	1.1 428A Ovary T (tact)				241A Esophagus H	42200612	498	4.2	73	2.1	73
421V00189 (01)	1.0 9485 1 P Ovary T (tact)				9485 5 P Ovary T (tact)	422Y0602	3117	16.7	91	8.2	91
421V00189 (01)	5.22 Ovary Tumor				C19 Kidney N	42200627	224	2.3	48	2.1	48

FIG. 13

Gene Name	Bal Probe 1 Exp Name	P1	P2 Name	QEM ID	Probe 1		Probe 2	
					Value	B/B	Value	B/B
421100187 (E11)	120.2 426A Ovary T (tue)		415A Aorta N	422X0611	5441	36.3	270	2.3
421100187 (E11)	100 S23 Ovary Tumor		S26 Spinal Cord N	422X0628	5418	27.1	531	2.3
421100187 (E11)	101 429A Ovary T (tue)		461A Ovary F	422X0614	1252	10.1	150	2.5
421100187 (E11)	157 485A Ovary T		591 Fetal tissue	422X0607	9507	35.8	1668	3.8
421100187 (E11)	154 405A Ovary T		200A Ovary N	422X0606	5456	31.1	1235	2.1
421100187 (E11)	152 265A Ovary Tumor		CT5 Heart F	422X0624	1834	11.9	408	2.0
421100187 (E11)	151 482A Ovary T		CT10 Heart N	422X0610	109	2.6	1259	2.0
421100187 (E11)	156 261A Ovary Tumor		S10 Skeletal muscle	422X0621	1731	17.7	1036	2.0
421100187 (E11)	153 261A Ovary Tumor		S21 Heart N	422X0623	4163	21.0	1219	2.3
421100187 (E11)	155 211A Ovary T (tue)		CT10 Small intestine	422X0601	1565	8.8	627	1.0
421100187 (E11)	151 261A Ovary Tumor		S2 Pancreas F	422X0609	1455	14.9	1640	2.1
421100187 (E11)	151 481A Ovary T (tue)		CTA Ovarian cells	422X0608	2667	13.4	1270	1.0
421100187 (E11)	151 222 Ovary Tumor		CT9 Embryo F	422X0627	291	2.4	605	1.9
421100187 (E11)	157 486A Ovary T		S10 PHAR (active)	422X0605	410	3.2	687	2.5
421100187 (E11)	155 262A Ovary Tumor		CT3 Pan N	422X0601	1622	7.9	984	2.0
421100187 (E11)	155 268A Ovary Tumor		CTA Large Intestine	422X0622	1892	10.1	1245	2.2
421100187 (E11)	154 426A Ovary T (tue)		CT12 Lung N	422X0625	604	4.1	908	2.6
421100187 (E11)	153 155A Ovary Tumor		CTA Esophagus F	422X0612	236	2.7	325	2.6
421100187 (E11)	152 201A Ovary Tumor		S7 Ovary N	422X0626	182	2.9	501	1.9
421100187 (E11)	150 918S 1P Ovary TC		S6 Stomach N	422X0620	558	4.2	677	2.0
421100187 (E11)	481A Ovary T (tue)		918S 5 P Ovary TC	422X0602	2582	15.1	2493	2.3
421100187 (E11)	266A Ovary T		CT Colon F	422X0609	2261	12.5	562	6.3
421100187 (E11)	S25 Ovary Tumor		S27 Ovary F	422X0603	1739	9.7	965	1.7
			CT4 Bone Marrow	422X0619	283	2.2	845	2.2

FIG. 14

11721-1

ACGGTTTC.AATGGACACTTTTATTGTTTACTTAATGGATCATCAATTTTGTCTCACTACCTA
CAAATGGAATTTTCATCTTGTTCATGCTGAGTAGTGAACAGTGACAAAGCTAATCATAA
TAACCTACATCAAAAGAGAACTAAGCTAACACTGCTCACTTTCTTTTAAACAGGCAAAATA
TAAATATATGCACTCTAXAATGCACAATGGTTTAGTCACTAAAAAATCAAATGGGATCTT
GAAGAATGTATGCAAATCCAGGGTGCAGTGAAGATGAGCTGAGATGCTGTGCAACTGTTT
AAGGGTTCCTGGCACTGCATCTCTTGGCCACTAGCTGAATCTTGACATGGAAGGTTTTAGC
TAATGCCAAGTGGAGATGCAGAAAATGCTAAGTTGACTTAGGGGCTGTGCACAGGAACATA
AAAGGCAGGAAAGTACTAAATAATTGCTGAGAGCATCCACCCAGGAAGGACTTTACCTTC
CAGGAGCTCCAACTGGCACCACCCCACTGCTCACATGGCTGACTTTATCCTCCGTGTTT
CATTTGGCACAGCAAGTGGCAGTG

11721-2

AAGGCTGGTGGGTTTTTGTATCCTGCTGGAGAACCTCCGCTTTCATGTGGAGGAAGAAGGG
AAGGGAAAAGATGCTTCTGGGAACAAGGTTAAAGCCGAGCCAGCCAAAATAGAAGCTTTC
CGAGCTTCACTTTCCAAGCTAGGGGATGTCTATGTCAATGATGCTTTTGGCACTGCTCACA
GAGCCACAGCTCCATGGTAGGAGTCAATCTGCCACAGAAGGCTGGTGGGTTTTTGTATGA
AGAAGGAGCTGAACACTACTTGGCAAAGGCTTGGAGAGCCAGAGCGACCCTTCTGGCCA
TCTTGGGCGGAGCTAAAGTTGCAGACAAGATCCAGCTCATCAATAATATGCTGGACAAAG
TCAATGAGATGATTATTGGTGGTGGAAATGGCTTTTACCTTCTTAAAGGTGCTCAACAACAT
GGAGATTGGCACTTCTCTGTTTGAATGAAGAGGGAGCCAAAGATTGTCAAAGACCTAATGTCC
AAAGCTGACAAGAATGGTGTGAAGATTACCTTGGCTGTTGACTTTGCTCACTGCTGACAAGT
TTGATGA

11721-1

TTTGTTCCTTACATTTTTCTAAAGAGTTACTTAAATCAGTCAACTGGTCTTTGAGACTCTTA
AGTTCTGATTCCAACCTAGCTAATTCATCTGAGAAGTGTGGTATAGGTGGCGTGTCTCTTC
TAGCTGGGACAAAAGTTCTTTGTTTTCCCGCTGTAGAGTATCACAGACCTTCTGCTGAAGC
TGGACCTCTGTCTGGGCTTGGACTCCCAAATCTGCTTGTATGTTCAAGCCTGGAAAATGTT
AATCTTTAAATCTTCCATATGGATGGACATCTGTCTAAGTTGATCCTTTAGAACACTGCAAT
TATCTTCTTTGACTCTAATTTCTTCTTCTTCTTGAATCGCATCACTAAACTTCTCTCCC
ATTCTTAGCTTCACTATCACCTGTGTCAGGATCATCTGGAGGGAAGACATGCTCTTAGTA
AAGGCTGCAAGCTGGGTGACACTACTGTCCAAAGTTTCTTGAAGTTGCTGAACCTTCTTGT
CTTTCTTGTCAAAGTAACCTGAATCTCTCCAATGTCTCTTCCAAGTGGACTTTTTCTCTGC
GCAAAGCATCCAG

11721-2

TCATTGCCTGTGATGGCATCTGGAATGTGATGAGCAGCCACGAAGTTGTAGATTTCAATTCA
ATCAAAGGATTCAGCATGTGGTGGAAAGCTGTGAGGCAAGAGAAAACAAGAAGTGTATGGCA
AGTTAAGAAGCACAGAGGCAAAACAAGAAGGAGACAGAAAAGCAGTTGCAGGAAGCTGAG
CAAGAAATGGAGGAAATGCAAGAAAAGATGAGAAAGTTTGCTAAATCTAAACAGCAGAA
AATCCTAGAGCTGGAAGAAGAGAATGACCGGCTTAGGCCAGAGGTGCACCCTGCAGGAG
ATACAGCTAAAGAGTGTATGGAACACTTCTTTCTTCCAATGCCACCATGAAGGAAGAAC
TTGAAAGGGTCAAAATGGAGTATGAACCCCTTCTAAGAAGTTTCAGTCTTTAATGTCTGA
GAAAGACTCTCTAAGTGAAGAGGTTCAAGATTTAAAGCATCAGATAGAAGGTAATGTATC
TAAACAAGCTAACCTAGAGGCCACCGAGAAACATGATAACCAAACGAATGTCACTGAAGA
GGGAACACAGTCTATACCAGT

FIG. 15A

11728.1.40.19.19

TACAAACTTTTATTGAAACGCACACGGCGCACACACACAAACACCCCTGTGGATAGGGAAAA
GCACCTGGCCACAGGGTCCACTGAAACGGGGAGGGGATGGCAGCTTGTAATGTGGCTTTT
GCCACAACCCCTTCTGACAGGGAAGGCCTTAGATTGAGGCCCCACCTCCCATGGTGATGG
GGAGCTCAGAATGGGGTCCAGGGAGAATTTGGTTAGGGGGAGGTGCTAGGGAGGCATGA
GCAGAGGGGACCCCTCCGAGTGGGGTCCCCAGGGCTGCAGAGTCTTCAGTACTGTCCCTCAC
AGCAGCTGTCTCAAGGCTGGGTCCCTCAAAGGGGCGTCCCAGCGCGGGGCTCCCTGCGC
AAACACTTGGTACCCCTGGCTGCGCAGCGGAAGCCAGCAGGACAGCAGTGGCGCCGATCA
GCACAACAGACGCCCTGGCGGTAGGGACAGCAGGCCAGCCCTGTCGGTTGTCTCGGCAG
CAGGTCTGGTTATCATGGCAGAAAGTGTCTTCCCACACTTCACGTCTTCACACGCACGTG
AXGGCTACXGGCCAGGAAG

11728.2.40.19.19

CCCGTGGGTGCCATCCACGGAGTTGTTACCTGATCTTTGGAAGCAGGATCGCCCGTCTGCA
CTGCACTGGAAGCCCCGTGGGCAGCAGTGATGGCCATCCCCGATGCCACGGCCTCTGGG
AAGGGGCAGCAACTGGAAGTCCCTGAGACGGTAAAGATGCAGGAGTGGCCGGCAGAGCA
GTGGGCATCAACCTGGCAGGGGCCACCCAGATGCCTGCTCAGTGTGTGGGCCATTTGTCC
AGAAGGGGACGGCAGCAGCTGTAGCTGGCTCCTCCGGGGTCCAGGCAGCAGGCCACAGGG
CAGAACTGACCATCTGGGCACCGCGTTCAGCCACCAGCCCTGCTGTTAAGGCCACCCAGC
TCACCAGGGTCCACATGGTCTGCCTGGCTCCGACTCCGCGGTCTTTGGGCCCTGATGGTTC
TACCTGCTGTGAGCTGCCCAGTGGGAAGTATGGCTGCTGCCAATGCCCAACGCCACCTGCT
GCTCCGATCACCTGCACCTGCTGCCCAAGACACTGTGTGTGACCTGATCCAGAGTAAGTGC
CTCTCCAAGGAGAACG

11730-1

GAATCACCTTTCTGGTTTAGCTAGTACTTTGTACAGAACAAATGAGGTTTCCCACAGCGGAG
TCTCCCTGGGCTCTGTTTGGCTCTCGGTAAGGCAGGCCTACACCTTTTCTCTCTCTATGG
AGAGGGGAATATGCATTAAAGGTGAAAAGTCACCTTCCAAAAGTGAGAAAGGGATTGATT
GCTGCTTCAGGACTGTGGAATTTATTTGCAATGTTTACAAATGTTTGTACAAAACAACAA
AAAAGGTAATTACAAAATGTGTACATCACAAATGCTTTTTAAAGACATTATGCATTGTGC
TCACATTCCTTAAATGTTGTTTCCAAAGGTGCTCAGCCTCTAGCCCCAGCTGGATTCTCCGG
GAAGAGGCAGAGACAGTTTGGCGAAAAAGACACAGGGAAGGAGGGGGTGGTGAAAGGA
GAAAGCAGCCTTCCAGTTAAAGATCAGCCCTCAGTTAAAGGTGAGCTTCCCGCAXGCTGGC
CTCAXGCGGAGTCTGGGTACAGCGGAGCAGCAGCAGGAGGAGGAGTGGGGCT

11730-2

AACCGGAGCGCGAGCAGTAGCTGGGTGGGCACCATGGCTGGGATCACCACCATCGAGGGC
GTGAAGCGCAAGATCCAGGTTCTGCAGCAGCAGGCAGATGATGCAGAGGAGCGAGCTGA
GCGCCTCCAGCCAGAAGTTGAGCGAGAAAGCGCGCGCGGGAACAGGCTGAGGCTGAGG
TGGCCTCCTTGAACCGTAGGATCCAGCTGGTTGAAGAAGAGCTGGACCGTGCTCAGGAGC
GCCTGGCCACTGCCCTGCAAAAGCTGGAAGAAGCTGAAAAAGCTGCTGATGAGAGTGAGA
GAGGTATGAAGGTTATTGAAAACCGCGCCTTAAAGATGAAGAAAAGATGGAAGTCCAG
GAAATCCAAGTCAAAGAAGCTAAGCACATTCCAGAAGAGGCAGATAGGAAGTATGAAGA
GGTGGCTCGTAAGTTGGTGATCATTAAGGAGACTTGGAAACGCACAGAGGAACGAGCTGA
GCTGGCAGAGTCCCGTTGCCGAGAGATCCATGAGCAGATTAGACTGATGGACCAGAACCT
GAAGTGTCTGAGTGC

FIG. 15C

11732.1contig

GAGAACTTGGCCTTTATTGTGGGCCCAGGAGGGGCACAAAGGTCAGGAGGCCCAAGGGAGG
 GATCTGGTTTTCTGGATAGCCAGGTCAATAGCATGGGTATCAGTAGGAATCCGCTGTAGCTG
 CACAGGCCTCACTTGCTGCAGTTCGGGGGAGAACACCTGCACTGCATGGCGTTGATGACCT
 CGTGGTACACGACAGAGCCATTGGTGCAGTGCAAGGGGCACGGCATGGGCTCCGTCCTCG
 AGGGCAGGCAGCAGGAGCATTGCTCCTGCACATCCTCGATGTCAATGGAGTACACAGCTT
 TGCTGGCACACTTTCCCTGGCAGTAATGAATGTCCACTTCTCTTGGGACTTACAATCTCCC
 ACTTTGATGTACTGCACCTTGGCTGTGATGTCTTTGCAATCAGGCTCCTCACATGTGTCACA
 GCAGGTGCCTGGAATTTTACGATTTTGCCTCCTTCAGCCAGACACTTGTGTTTCATCAAATG
 GTGGGCAGCCCGTGACCCTCTTCTCCCAGATGTACTCTCCTCT

11732.2contig

GCCTGGACCTTGCCGGATCAGTGCCACACAGTGACTTGCTTGGCAAATGGCCAGACCTTGC
 TGCAGAGTCATCGTGTCAATTGTGACCATGGACCCCGGCTTCATGTGCCAACAGCCAGTC
 TCCTGTTGGGTGGAGGAGACGTGTGGCTGCCGCTGGACCTGCCCTTGTGTGTGCACGGGC
 AGTTCCACTCGGCACATCGTCACTTCGATGGGCAGAAATTTCAAGCTTACTGGTAGCTGCT
 CCTATGTATCTTTCAAACAAGGAGCAGGACCTGGAAGTGCTCCTCCACAATGGGGGCTG
 CAGCCCCGGGGCAAACAAGCCTGCATGAAGTCCATTGAGATTAAGCATGCTGGCGTCTC
 TGCTGAGCTGCACAGTAACATGGAGATGGCAGTGGATGGGAGACTGGTCCTTGGCCCGTA
 CGTTGGTGAACAATGGAAGTCACCATCTACGGCGCTATCATGTATGAAGTCAGGTTTACC
 CATCTTGGCCACATCCTCACATACACCGCCXCAAAACAACGAGTT

11735-1-2

AGATCAACCTCTGCTGCTCAGGAGGAATGCCTTCTTGTCTTGGATCTTTGCTTTGACGTTT
 TCGATAGTRWCACTKKRYTSRAMSKMAAGKGYRATGRWMITKSYWGWWRASYXTMWWM
 RSGRARAYTTAGCAYCCCMCCCTWAGAGCGSAGKACCARGTGCAAGGTGGACTCTTTCTG
 GATGTTGTAGTCAGACAGGGTCCGTCATCTTCCAGCTGTTTCCAGCAAAGATCAACCTC
 TGCTGATCAGGAGGGAATGCCTTCTTATCTTGGATCTTTGCCCTTGACATTCTCGATGGTGT
 ACTGGGCTCCACCTCGAGGGTGAATGGTCTTACCAGTCACGGTCTTCACGAAGATYTGATC
 CCACCTCTGAGACGGAGCACCAGGTGCAGGGTRGACTCTTTCTGGATGTTGTAGTCAGACA
 GGGTCCGYCCATCTTCCAGCTGCTTCCSAGCAAAGATCAACCTCTGCTGGTCAGGAGGRAT
 GCCTTCTTGTCTYTCGATCTTTCCYTTGACRTTCTCRATGGTGTCACTCGGCTCCACTTGA
 GAGTGATGGTCTTACCAGTCAGGGTCTTCACGAAGATCTGCATCCCACCTCTAA

11740.2.contig

AAGTCACAAACAGACAAAGATTATTACCAGCTGCAAGCTATATTAGAAGCTGAACGAAGA
 GACAGAGGTCAATCTGAGATGATTGGAGACCTTCAAGCTCGAATTACATCTTTACAAG
 AGGAGGTGAAGCATCTCAAAACATAATCTCGAAAAAGTGGAAAGGAGAAAGAAAAGAGGCT
 CAAGACATGCTTAATCACTCAGAAAAAGCAAAAGATAATTTAGAGATAGATTTAAACTAC
 AAATTTAAATCATTACAACAACGGTTAGAACAAAGAGGTAATGAACACAAAGTAACCAAA
 GCTCGTTAACTGACAAACATCAATCTATTGAAGAGCCAAAGTCTGTGGCAATGTGTGAG
 ATGGAACAAAAAGCTGAAAGAAAGAAAGAGAAAGCTCGAGAGAAGGCTGAAATCGGGTTGT
 TCAGATTGAGAAACAGTGTCTCATGCTAGACGTTGATCTGAAGCAATCTCAGCAGAACT
 AGAACATTTGACTGGAATAAAGAAAGCATGGAGGATGAAGTTAAGAATCTA

FIG. 15D

11765.2&64.2.contig

CGCCTCCACCATGTCCATCAGGGTGACCCAGAAAGTCTACAAGGTGTCCACCTCTGGCCCC
CGGGCCTTCAGCAGCCGCTCCTACACGAGTGGGCCCCGGTTCCTCGCATCAGCTCCTCGAGCT
TCTCCCGAGTGGGCAGCAGCAACTTTTCGGCGGTGGCCTGGGCGGCGGCTATGGTGGGGCCA
GCGGCATGGGAGGCATCACCAGTACGGTCAACCAGAGCCTGCTGAGCCCCCTTGTCT
GGAGGTGGACCCCAACATCCAGGCCGTGCGCACCCAGGAGAAGGAGCAGATCAAGACCT
CAACAACAAGTTTGCCTCCTTCATAGACAAGGTACGGTTCCTGGAGCAGCAGAACAAGAT
GCTGGAGACCAAGTGGAGCCTCCTGCAGCAGCAGAAGACGGCTCGAAGCAACATGGACA
ACATGTTTCGAGAGCTACATCAACARCCTTAGGCGGCAGCTGGAGACTCTGGGCCAGGAGA
AGCTGAAGCTGGAGGCGGAGCTTGGCAACATGCAGGGGCTGGTGGAGGACTTCAAGAAC
AAGTATGAGGATGAGATCAATAAGCGTACAGAGATGGAGAACGAATTTGTCTCATCAAG
AAGGATGTGGATGAAGCTTACATGAACAAGGTAGAGCTGGAGTCTCGCCTGGAAGGGCTG
ACCGACGAGATCAACTTCCTCAGGCAGCTGTATGAAGAGGAGATCCGGGAGCTGCAGTCC
CAGATCTCGGACACATCTGTGGTGTGTCCATGGACAACAGCCGCTCCCTGGACATGGACA
GCATCATTGCTGAGGTCAAGGCACAGTACGAGGATATTGCCAACCGCAGCCGGGCTGAGG
CTGAGAGCATGTACCAGGTCAAGTATGAGGAGCTGCAGAGCCTGGCTGGGAAGCACGGGG
ATGACCTGCGGCGCACAAGACTGAGATCTCTGAGATGAACCCGGAACATCAGCCCCGGT
XCAGGCTGAGATTGAGGGCCTCAAAGGCCAGAXGGCTTXCCTGGAXGXCCGCCAT

11767.2.contig

CCCGGAGCCAGCCAAACGAGCCGGAATAATGGCAGACAATTTTCGGCTCCATGATGCGTTATCT
GGGTCTGGAAACCCCAACCCCTCAAGGATGGCCTGGCGCATGGGGGAACAGCCTGCTGGG
GCAGGGGGCTACCCAGGGGCTTCTATCCTGGGGCTACCCCGGGCAGGCACCCCAAGG
GCTTATCCTGGACAGGCACCTCCAGGCGCTACCTGGAGCACCTGGAGCTTATCCCGGAG
CACCTGCACCTGGAGTCTACCCAGGGCTACCCAGCGGCCCTGGGGCTACCCATCTTCTGG
ACAGCCAAAGTCCCACCGGAGCCTACCTGCCACTGGCCCCCTATGGCGCCCCCTGCTGGGCCA
CTGATTGTGCCTTATAACCTGCCCTTGGCTGGGGAGTGGTGCCTCGCATGCTGATAACA
TTCTGGGCACGGTGAAGCCCAATGCCAAGAGAATTGCTTTAGATTTCCAAAGAGGGAATG
ATGTTGCCCTTCCACTTTAACCCACGCTTCAATGAGAACAACAGGAGAGTCAATTGGTTGCAA
TACAAAGCTGGATAA

11768-1&2

GGGAATGCAACAACCTTTATTGAAAGGAAAGTCCAATGAAATTTGTTGAAACCTTAAAAGG
GGAAACTTAGACACCCCCCTCRA₂CGMAGKACCARGTGCA₂GTGGACTCTTTCTGGAT
GTTGTAGTCAGACAGGGTRCGWCCATCTTCCAGCTGTTTYCCRGCAAAGATCAACCTCTGC
TGATCAGGAGGRATGCCTTCCTTATCTTGGATCTTTGCCCTTGACATTCTCGATGGTGTCACT
GGGCTCCACCTCGAGGGTGATGGTCTTACCAGTCAGGGTCTTACGAAGATYTGCATCCCA
CCTCTGAGACCGAGCACAGGTCCAGGGTRGACTCTTCTGGATGTTGTAGTCAGACAGG
GTGGCYCCATCTTCCAGCTG₂TTCCS₂AGCAAAGATCAACCTCTGCTGGTCAGGAGGRATGC
CTTCTTGTCTYTGGATCTTTCCTTGACRTTCTCAATGGTGTCACTCGGCTCCACTTCGAGA
GTGATGGTCTTACCAGTCAGGGTCTTACGAAGATCTGCATCCCACCTCTAAGACGGAGCA
CCAGGTGCAGGGTGGACTCTTCTGCA₂TG₂TTGTAGTCAGACAGGGTCCGTCCATCTTCCA
GCTGTTTCCCAGCAAAGATCAACCT

FIG. 15E

11768-1&2-11735-1&2

AGGTTGATCTTTGCTGGGAAACAGCTGGAAGATGGACGCACCCTGTCTGACTACAAcCATC
CAGAAAGAGTCCACCCTGCACCTGGTGTCTCCGTCTTAGAGGTGGGATGCAGATCTTCGTGA
AGACCCTGACTGGTAAGACCATCACTCTCGAAGTGGAGCCGAGTGACACCATTTGAGAAYG
TCAARGCAAAGATCCARGACAAGGAAGGCATYCCCTCTGACCAGCAGAGGTTGATCTTTG
CtSGGAAAgCAGCTGGAAGATGGRCGCACCCTGTCTGACTACAACATCCAGAAAGAGTCTYA
CCCTGCACCTGGTGTCTCCGTCTCAGAGGTGGGATGCAATCTTCGTGAAGACCCTGACTGG
TAAGACCATCACCCCTCGAGGTGGAGCCCAGTGACACCATCGAGAATGTCAAGGCCAAAGAT
CCAAGATAAGGAAGGCATCCCTCCTGATCAGCAGAGGTTGATCTTTGCTGGGAAACAGCT
GGAAGATGGACGCACCCTGTCTGACTACAACATCCAGAAAGAGTCCACcTYTGCACYTGGT
MCTBCGtCTY₃GAGGKGGGRTG_{caaa}TCTWMTKW_{WagaCaCtCa}CTKKYAAGRYYaTCAMCMWt
gAKKTCgAKYSCASTKWC₃CTWTCRAK_{AA}MGTYRWWGCAW_{aga}TCCMAGACAAGGAAGGC
ATTCCTCCTGACCAGCAGAGGTTGATCT

11769.1.contig

ATGGAGTCTCACTCTGTGCGACCAGGCTGGAGCGCTGTGGTGCGATATCGGCTCACTGCAGT
CTCCACTTCCTGGGTTCAAGCGATCCTCCTGCCTCAGCCTCCCGAGTAGCTGGGACTACAG
GCAGGCGTCACCATAATTTTGTATTTTGTAGTAGAGACATGGTTTCGCCATGTTGGCTGGG
CTGGTCTCGAACTCCTGACCTCAAGTCACTGTCTCTGGCCTCCCAAGTGTTGGGATTACA
GGCGAAAGCCAACGCTCCCGCCAGGCAACAACCTTTAGAATGAAGGAAATATGCAAAAG
AACATCACATCAAGGATCAATTAATTACCATCTATTAATTACTATATGTGGGTAATTATGA
CTATTTCCCAAGCATTTCTACGTTGACTGCTTGAGAAGATGTTTGTCTCGCATGGTGGAGAG
TGGAGAAGGGCCACGATTCTTAGCTT

11769.2.contig

AGCGCGGTCTTCCGCGCGGAGAAAGCTGAAGGTGATGTGGCCGCCCTCAACCGACGCATC
CAGCTCGTTGAGGAGGAGTTGCACAGGCTCAGGAACGACTGGCCACGGCCCTGCAGAAAG
CTGGAGGAGGCAGAAAAAGCTCCAGATGAGAGTGAGAGAGGAATGAAGGTGATAGAAAA
CCGGCCCATGAAGGATGAGGAGAAAGATGGAGATTCAAGGAGATGCAGCTCAAAGAGGCCA
AGCACATTGCGGAAGAGGCTGACCGCAATACGAGGAGGTAGCTCGTAAGCTGGTCACTCC
TGGAGGGTGAGCTGGACAGGCGCAGAGGAGCGTCCGGAGGTGTCTGAACTAAAATGTGGT
GACCTGGAAGAAGCAACTCAAGAACTCTTACTAACAATCTGAAATCTCTGGAGGCTGCATCT
GAAAAGTATTCTGAAAAGGAGGACAAATATGAAGAAGAAATTAACCTTCTGTCTGACAAA
CTGAAAGAGGCTGAGACCCGTGCTGAAATTTGCAGAGAGAACGGTTGCAAAACTGGAAAAG
ACAATTGATGACCTGGAAGAGAAACTTCCCCAGC

11770.1.contig

GTGCACAGGTCCCATTTATTGTAGAAAAATAATAATAATTACAGTGATGAATAGCTCTTCTT
AAATTACAAAACAGAAACCACAAAGAAGGAAGACGAAAAACCCACGACTTCCAAGGGT
GAAGCTGTCCCTCCTCCTGCCACCTCCAGGCTCATTAGTGTCTTGGAAAGGGGCAGA
GGACTCAGAGGGGATCAGTCTCCAGGGGCCCTGGGCTGAAGCGCGGTGAGGCAGAGAGTCC
TGAGGCCACAGAGCTCGGCAACCTGAGCCGCTCTCTGCCCCCTCCCCCACCCTGCCCCA
AACCTGTTTACAGCACCTTCCGCCCTCCTCTAAACCCGTCCAATCCACTCTGCACTTCCCA
GGCAGGTGGGTGGGCCAGGCTCAGCCATACTCTGGGCGCGGGTTTCGGTGAGCAAGGC
ACAGTCCCAGAGGTGATATCAAGGCCT

FIG. 15F

11770.2.contig

GCAAGGAAC TGGTCTGCTCACACTTGTGGCTTGGCGATCAGGACTGGCTTTATCTCCTGA
CTCACGGTGCAAAGGTGCACTCTGCGAACGTAAAGTCCGTCCCAGCGCTTGGAAATCCTAC
GGCCCCACAGCCGGATCCCCTCAGCCTTCCAGGTCTCAACTCCCGTGGACGCTGAACAA
TGGCCTCCATGGGGCTACAGGTAATGGGCATCGCGCTGGCCGTCTGGGCTGGCTGGCCGT
CATGCTGTGCTGCGCGCTGCCCCATGTGGCGCGTGACGGCCTTCATCGGCAGCAACATTGTC
ACCTCGCAGACCATCTGGGAGGGCCTATGGATGAACTGCGTGGTGCAGAGCACCGGCCAG
ATGCAGTGCAAGGTGTACGACTCGCTGCTGGCACTGCCGCAGGACCTGCAGGCGGCCCGC
GCCCTCGTCATCATCA

11773.1.contig

TGC.AAAAGGGACACAGGGGTTCAAAAATAAAAATTCTCTTCCCCCTCCCCAAACCTGTAC
CCCAGCTCCCCGACCACAACCCCCCTTCTCCTCCCGGGGAAAGCAAGAAGGAGCAGGTGTG
GCATCTGCAGCTGGGAAGAGAGAGGCCGGGGAGGTGCCGAGCTCGGTGCTGGTCTCTTTC
CAAATATAAATACXTGTGTGAGAATGGAAATCTCCAGCACCCACCACCCAAGCACTCT
CCGTTTTCTGCCGGTGTGGAGAGGGGGCGGGGGCAGGGGGCGCCAGGCACCGGCTGGCT
GCGGTCTACTGCATCCGCTGGGTGTGCACCCCGCGAGCCTCCTGCTGCTCATTGTAGAAGA
GATGACACTCGGGGTCCCCCGGATGGTGGGGGCTCCCTGGATCAGCTTCCCGGTGTTGGG
GTTACACACACCAGCACTCCCCACCGCTGCCCGTTACAGAGACATCTTGC.ACTGTTTGAGGTTG
TACAGGCCATGCTTGTACAGTTG

11778.1.contig

GGGTTGGACGGCACTGGTCTTTATTTCAAAAAGACACTTGTCAATATTCAGTATCAAAAACA
GTTGCACTATTGATTTCTCTTTCTCCCAATCGGCCCAAAGAGACCACATAAAAAGGAGAGT
ACATTTTAAGCCAATAAGCTGCAGGATGTACACCTAACAGACCTCCTAGAAACCTTACCAG
AAAATGGGGACTGGGTAGGGAAGCAAACTTAAAGATCAACAACTGCCAGCCACGGA
CTGCAGAGGCTGTACAGCCAGATGGCGTGGCCAGGGTGCCACA.AACCCAAAGCAAAAGTT
TCAAAATAATATAAAATTTAAAGTTTGTACATAAGCTATTCAAGATTTCTCCAGCACT
GACTGATACAAAGCACAAATTGAGATGCCACTTCTAGAGACAGCAGCTTCAAACCCAGAAA
AGGGTGATGAGATGAGTTTACATGGCTAAATCAGTGGCAAAAACACAGTCTTCTTTCTTT
CTTTCTTTCAAGGAGCCAGCAAAAGCAATTAAGTGGTCACTCAACATAAGGGGGACATGA
TCCAATCTGTAAGCAGTTCTGAAGCCG

11778-2&30-2

CAGGAACCGGAGCGCCAGCACTAGCTGGGTGGCCACCATGGCTGGGATCACCACCATCGA
GGCGGTGAAGCGCAAGATCCAGGTTCTGCAGCAGCAGGCAGATGATGCAGAGGACCGAG
CTGAGCGCCTCCAGCGACAAGTTGAGGGAGAAAAGCGGGCCCCGGAAACAGGCTGAGGCT
GAGGTGGCCTCCTTGAACCGTAGGATCCAGCTGGTTGAAGAAGAGCTGGACCGTGTCTCAG
GAGCGCCTGCCCACTGCCCTGCCAAAAGCTGGAAGAAGCTGAAAAGCTGCTGATGAGAGT
GAGAGAGGTATGAAGGTTATTGAAAACCGGGCCTTAAAGATGAAGAAAGATGGAACT
CCAGGAAAATCCAACCTCAAAGAAGCTAAGCACATTGCAGAAGAGGCAGATAGGAAGTATG
AAGAGGTGGCTCGTAAGTTGGTGATCATTGAAGGAGACTTGC.AACGCACAGAGGAACGAG
CTGAGCTGGCAGAGTCCCGTTGCCGAGAGATGGATGAGCAGATTAGACTGATGGACCAGA
ACCTGAAGTGTCTGAGTGC

FIG. 15G

11782.1.contig

ATCTACGTCAJCAATCAGGCTGGAGACACCATGTTCAATCGAGCTAAGCTGCTCAATATTG
GCTTTCAAGAGGCCTTGAAGGACTATGATTACAACCTGCTTTGTGTTCAAGTATGTGGACCT
CATTCGGATGGACGACCGTAATGCCTACAGGTGTTTTTCGCAGCCACGGCACATTTCTGTT
GCAATGGACAAGTTCGGGTTTAGCCTGCCATATGTTCAAGTATTTGGAGGTGTCTCTGCTCT
CAGTAAACAACAGTTTCTTGCCATCAATGGATTCCCTAATAATTATTGGGGTTGGGGAGGA
GAAGATGACGACATTTTAAACAGATTAGTTTATAAAGGCATGTCTATATCACGTCCAAATG
CTGTAGTAGGGAGGTGTGCAATGATCCGGCATTCAAGAGACAAGAAAAATGAGCCCAATC
CTCAGAGGTTTGACCGGATCGCACATACAAAGGAAACGATGCGCTTCGATGGTTTGAAC
CACTTACCTACAAGGTGTTGGATGTCAGAGATACCCGTTATATACCCAAATCAC

11782.2.contig

CTAGACCTCTAATTAAGGACACAATCATGCTGGAGAATGAACAGTCTGACCCCGAGGGC
CACAGCGAATTTTAGGGAAGGAGGCAAGAGGTGAGAAGGGAAAGGAAGAAGGAAGG
AAGGAGAACAATAAGAACTGGAGACGTTGGGTGGGTCAGGGAGTGTGGTGGAGGCTCGG
AGAGATGGTAAACAAACCTGACTGCTATGAGTTTCAACCCCATAGTCTAGGGCCATGAG
GGCGTCAGTTCTTGGTGGCTGAGGGTCTTCCACCCAGCCACCTGGGGGAGTGGAGTGG
GGAGTTCTGCCAGGTAAAGCAGATGTTGTCTCCCAAGTCTCTGACCCAGATGTCTGGCAGGA
TAACGCTGACCTGTTCCCTCAACAAGGACCTGAAAGTAATTTTGCTCTTTAC

11783-1 & 2

CCGAATTC AAGCGTCAACGATCCYTCCTTACCATCAAAATCAATTGGCCACCAATGGTACT
GAACCTACGAGTACACCGACTACGGCGGACTAATCTTCAACTCCTACATACTTCCCCCAT
TATTCCTAGAACCAGGCGACCTGCGACTCCTTGACGTTGACAAATCGAGTAGTACTCCCCAT
TGAAGCCCCCATTCGTATAATAATTACATCACAAGACGTCTTGCACTCATGAGCTGTCCCC
ACATTAGGCTTAAAAACAGATGCAATTCGCGGACGTCTAAGCCAAACCACTTTACCGCTA
CAGGACCGGGGGTATACTACCGTCAATGCTCTGAAATCTGTGGAGCAAAACCACAGTTTCAT
GCCCCATCGTCTAGAAATTAATCCCTTAAAAATCTTTGAAATAGGGCCCCGTATTTACCCTA
TAGCACCCCCCTCTACCCCCCTCTAG

11786.1.contig

GCTCTTCACACTTTTATTGTTAAATCTCTTCACATGGCAGATACAGAGCTGTGCTCTTGAAG
ACCACCACTGACCAGGAAATGCCACTTTTACAAAAATCATCCCCCTTTTTCATGATTGGAAC
AGTTTCTCTGACCGTCTGGGAGCGTGAAGGGTGACCAGCACATTTGCACATGCAAAAAA
GGAGTGACCCCAAGGCCTCAACCACACTTCCCAGAGCTCACCATGGGCTGCAGGTGACTT
GCCAGGTTTGGGGTTCGTGAGCTTTCTTGCTGCTGCGGTGGGGAGGCCCTCAAGAACTGA
GAGGCCGGGGTATGCTTTCATGAGTGTAAACATTTACGGCACAAAAGCGCATCATTAGGAT
AAGCAACAGCCACAGCACTCATGCTTCTGAGCGTTAGCTGTAGGACCGGGTGAAAGGAT
TCCAGTTTATGAAAAATTAAGCAAAACAACGTTTTTACCTGGGTGGGAAACAGGAAAC
TGTGATGTGGCCCAATGACCACCAATTTTCTGCCCATGTGAAGGTCCCCATGAAACC

FIG. 15H

11786.2.contig

CAAGCGCTTGGCGTTTGGACCCAGTTCAGTGAGGTTCTTGGGTTTTGTGCCTTTGGGGATTT
TGGTTTGACCCAGGGGTCAGCCTTAGGAAGGTCTTCAGGAGGAGGCCGAGTTCCCCTTCAG
TACCACCCCTCTCTCCCCACTTTCCCTCTCCCGGCAACATCTCTGGGAATCAACAGCATATT
GACACGTTGGAGCCGAGCCTGAACATGCCCTCGGCCCCAGCACATGGAAAACCCCTTC
CTTGCTTAAGGTGTCTGAGTTTCTGGCTCTTGAGGCAATTCAGACTTGAAATTCTCATCAG
TCAATTGCTCTTGAGTCTTTGCAGAGAACCTCAGATCAGGTGCACCTGGGAGAAAGACTTT
GTCCCCACTTACAGATCTATCTCCTCCCTTGGGAAGGGCAGGGAATGGGGACGGTGTATGG
AGGGGAAGGGATCTCCTGCGCCCTTCATTGCCACACTTGGTGGGACCATGAACATCTTTAG
TGTCTGAGCTTCTCAAATTAAGTGAATAGGA

13691.1&2

AGCGTCAAATCAGAATGGAAAAGACTCAAATCCATCATCAACACCAAGATCAAAGGAC
AAGRATCCTTCAAGAAACAGGAAAAAATCCTAAAAACACAAAAGGACCTAGTTCTGTAG
AAGACATTAAAGCAAAAAATGCAAGCAAGTATAGAAAAAGGTGGTTCTCTTCCCAAAGTGG
AAGCCAAATTCATCAATTAATGTGAAGAAATGCTTCCGGATGACTGACCAAGAGGCTATTCA
AGATCTCTGGCAGTGGAGGAAGTCTCTTAAGAAAAATAGTTTAAACAATTTGTTAAAAAAT
TTCCGCTCTTAATTCATTTCTGTAAACAGTTGATATCTGGCTGTCTTTTTATAATGCAGAGT
GAGAACTTCCCTACCGTGTGTAATAATGTTGTCCAGGTTCTATTGCCAAGAATGTGTTGT
CCAAAATGCCCTGTTTAGTTTTAAAGATCGAACTCCACCCTTTGCTTGGTTTTAAGTATGTA
TGAATGTTATGATAGGACATAGTAGCCGTGCTCAGACATGGAAAATGGTGGGSMGAC
AAAAATATACATGTGAAATAA

13692.1&2

TCCGAATTCCAAGCGAATTATGGACAAACGATTCTTTAGAGGATTACTTTTTCAATTTT
GGTTTTAGTAATCTAGGCTTTGCTGTAAAGCAATACAACGATGGATTTTAAATACTGTTTG
TGGAAATGTGTTTAAAGCAATGATCTAGAACCTTTGTATATTTGATAGTATTTCTAACTTTT
ATTTCTTTACTGTTTGCAGTTAATGTTTCTGCTATGCAATCGTTTATATGCACGTTTC
TTTAAATTTTTTAGATTTTCTGATGTATAGTTTAAACAACAAAAAGTCTATTTAAACTG
TAGCAGTAGTTTACAGTTCTAGCAAAAGAGGAAAGTTGTGGGTTAAACTTTGTATTTCTT
TCTTATAGAGGCTTCTAAAAAGGTAATTTTATATGTTCTTTTAACAAATATTGTGTACAAC
CTTTAAACATCAATGTTTGGATCAAAACAAGACCCAGCTTATTTTCTGC

13693.2

TGTGGTGGCGCGGGCTGAGGTGGAGCCCCAGGACTCTGACCCCTGCCCTTCAGCAA
GGCCCCCGGCAGCGCGGGCCACTACGAACCTCCGTTGGGTTGAAAAATATAGGCCAGTAAA
GCTGAATGAAATTTGTGGGAATCAAGACACCGTGAGCAGGCTAGAGGTCTTTGCAAGGGA
AGGAAATGTGCCCCAACATCATCATTCGCGGGCCCTCCAGGAACCGGCAAGACCAAGCAT
TCTGTGCTTGGCCCCGGGCCCTGCTGGCCCCAGCACTCAAAGATGCCATGTTGGAACCTCAAT
GCTTCAAATGACAGGGGCAATTGACGTTGTGAGGAATAAAATTAATAATGTTTCTCAACAA
AAAGTCACTCTTCCCAAAGCGCGACATAAGATCATCATTTCTGGATGAAGCAGACAGCATG
ACCGACGGAGCCCAAGCCTTGAGGAGAACCATGGAAATCTACTCTAAAACCACTCGT
TCCCCCTTGTGTAATGCTTCGGATAAGATCATCGAGCC

FIG. 15I

13696.1-13744.1

CTTTGCAAAGCTTTTATTTTCATGTCTGCGGCATGGAATCCACCTGCACATGGCATCTTAGCT
GTGAAGGAGAAAGCAGTGCACGAGAAGGAATGAGTGGGCGGAACCAACGGCCTCCACAA
GCTGCCTTCCAGCAGCCTGCCAAGGCCATGGCAGAGAGAGACTGCAAACAAACACAAGCA
AACAGAGTCTCTTACAGCTGGAGTCTGAAAGCTCATAGTGGCATGTGTGAATCTGACAA
AATTAAAAGTGTGCATAGTCCATTACATGCATAAAACACTAATAATAATCCTGTTTACACG
TGA CTGCAGCAGGCAGGTCCAGCTCCACCCTGCTCCCTGCCACATCACATCAAGTGCCA
TGTTTATAGAGGGTTTTTCATATGTAATTTCTTTTATTTCTGTAAAAGGTAACAAAATATACAG
AACAAAACCTTTCCCTTTTTTAAAACATAATGTTACAAATCTGTATTATCACTTGGATATAAAT
AGTATATAAGCTGATC

13700.1

CAAGGGATATATGTTGACGGTACRGRGTGACACTGAACAGATCACAAAGCACGAGAAACA
TTAGTTCTCTCCCTCCCCAGCGTCTCCTTCTCCTGGTTTTCCGATGTCCACAGAGTGA
GATTGTCCCTAAGTAACTGCATGATCAGAGTGTGKCTTTATAAGACTCTTCATTCAGCGT
ATCCAATTCAGCAATTGCTTCATCAAATGCCGTTTTTGGCAGGCTACAGGCCTTTTTCAGGA
GAGTTTAGAATCTCATAGTAAAAGACTGAGAAATTTAGTGCCAGACCAAGACGAATTGGG
TGTGTAGGCTGCATTNCTTTCTTACTAAATTCAAATGCTTCTGTTAAGCCTGCTGGGAGTT
CGACACAAGTGGTTTTGTTTGTGCTCCAGATGCCACTTCAGAAAGATACCTAAAATAATCT
CCTTTCATTTTCAAAGTAGAACAC

13700.2

TCCGGAGCCGGGGTAGTCCGCGCGCGCTCCCGCGGGTCCAGCCACTGCAGGCCACCGCTGCC
GCCGCTGAGTAGTGGGCTTAGCAAGCAAGAGGTCTCTCGCTCGGAGCTTCGCTCGGAA
GGGTCTTTGTTCCCTGCCAGCCCTCCACCGGGAATGACAATGGATAAAAGTGAGCTGGTACA
GAAAGCCAAACTCGCTGAGCAGGCTGAGCGATATGATGATATGGCTGCAGCCATGAAGGC
AGTCACAGAACAGCGGCATGAACCTCTCCAAAGAGAGAGAAATCTGCTCTCTGTTGCCTA
CAAGAAATGTGGTAAGGCGCGCGCGCGCTCTTCTGCGGTGTCTCTCCAGCATTGAGCAGA
AAACAGAGAGCAATGAGAAAGAACAGCAGATGGGCAAGAGTACCGTGAGAGATAGA
GGCAGAACTGCAGGACATCTGCAATGATGTTCTGGAGCTTGTGGACAAATATCTTATTC
AATGCTACACAACCCAGAAA

13701.1

AAAAAGCAGCARGTTCAACACAAAAATAGAAATCTCAAATGTAGGATAGAACAAAACCAA
GTGTGTGAGGGGGGAAGCAACAGCAAAAGGAAGAAATGAGATGTTGCAAAAAAGATGGA
GGAGGGTTCCTCTCTCTCTGGGACTGACTCAAACACTGATGTGGCAGTATACACCATTC
CAGAGTCAGGGGTGTTCAATCTTTTGGGACTAAGAAAACGTGGGGATTAAAGAAGACGT
TTCTGGAGCTTAGGGACCAAGGCTGGGTCTTTCCCCCTCCCAACCCCTTGATCCCTTT
CTCTGATCAGGGGAAAGCAGCTCGAATGAGGCAGGTAGAGTTGGAAAGGGAAAGGATTC
CACTTGACAGAATGGGACAGACTCCTTCCCA

FIG. 15J

13701.2

TGGCAATAGCACAGCCATCCAGGAGCTCTTCARGCGCATCTCGGAGCAGTTCACTGCCATG
TTCCGCCCGGAAGGCCTTCCTCCACTGGTACACAGGCGAGGGCATGGACGAGATGGAGTTC
ACCGAGGCTGAGAGCAACATGAACGACCTCGTCTCTGAGTATCAAGCAGTACCAGGATGC
CACCGCAGAAGAGGAGGAGGATTTCCGGTGAGGAGGCCGAAGAGGAGGCCTAAGGCAGAG
CCCCATCACCTCAGGCTTCTCAGTTCCCTTAGCCGTCTTACTCAACTGCCCCCTTCCTCTCC
CTCAGAAATTTGTGTTTGCTGCCTCTATCTTGTITTTTGTITTTTCTTCTGGGGGGGTCTAGAA
CAGTGCCCTGGCACATAGTAGGCGCTCAATAAATACTTGGTTGNTGAATGTCTCCT

13702.2

AGCTGGCGCTAGGGCTCGGTTGTGAAATACAGCGTRGTCAGCCCTTGGGCTCAGTGTAGAA
ACCCAGCGCTGTAAAGGTCCGTCTTCGTCCATCTGCTTTTTCTGAAATACACTAAGAGCAG
CCACAAAACCTGTAACTCAAGGAAACCATAAAGCTTGGAGTGCCTTAATTTTAAACCAGTT
TCCAATAAAACGGTTTACTACCT

13704.2-13740.2

GGAGATGAAGATGAGGAAGCTGAGTCAGCTACGGGCARGCGGGCAGCTGAAGATGATGA
GGATGACGATGTGATACCAAGAAGCAGAAGACCGACGAGGATGACTAGACAGCAAAAA
AGGAAAAGTTAAA

13706.1

GATGAAAATTAAATACTTAAATTAAATCAAAAGGCACTACGATACCACCTAAAACCTACTG
CCTCAGTGGCAGTAKGCTAAKGAACATCAAGCTACAGSACATYATCTAATATGAATGTTA
GCAATTACATAKARGAAGCATGTTTCTTTCCAGAAGACTATGGNACAATGGTCAATTWG
GCCCCAAGAGGATAATTTGCCNCGAAAGGATCAAGATAGATNAANGTAAAG

13706.2

GAGTAGCAACGCCAAAGCCCTTGGTATTGAGTCTGTGGGSGACTTCGGTTCCGGTCTCTGCA
GCAGCCGTGATCGCTTAGTGGAGTGCTTAGGGTAGTTGGCCAGGATGCCGAATATCAAAA
TCTTCAGCAGGCAGCTCCCACCAGGACTTATCTCASAATAATGCTGACCGCCTGGGCCTGG
AGCTAGGCAAGGTGGTGACTAAGAAATTCAGCAACCAGGAGACCTGTGTGGAAATTGGTG
AAAGTGTACCGTGGAGAGGATGTCTACATTGTTTCAGAGTGGNTGTGGCGAAATCAATGAC
AATTTAATGGAGCTTTTGATCATGATTAATGCCTGCCAAGATTGCTTCAGCCAGCCGGGTTA
CTGCAGTCATCCCATGCTTCCCTTATGCCCGGCGAGGATAAGAAAAGATNAGAGCCGGGCC
GCCAATCTCAGCCAAGCTTCGTGCCAAATATGCTATCTGTAGCAGTGCAGATCATATTATCA
CCATGGACCTACATGCTTCTCAAATTCANGGCTTTT

FIG. 15K

13707.3

ATGCAAAAGGGGACACAGGGGGTTCAAAAATAAAAAATTTCTTCCCCCTCCCCAAACCT
GTACCCCAAGCTCCCCGACCACAACCCCTTCTCCCCCGGGGAAAGCAAGAAGGAGCAGG
TGTGGCATCTGCAGCTGGCAAGAGAGAGGCCGGGGAGGTGCCGAGCTCGGTCTGGTCTC
TTTCCAAATATAAATACGTGTGTGTCAGAACTGGAAAAATCCTCCAGCACCCACCACCCAAGCA
CTCTCCGTTTTCTGCCGGTGTGTTGGAGAGGGGCGGNGGGCAGGGGCGCCAGGCACCGGCT
GGCTGCGGTCTACTGCATCCGCTGGGTGTGCACCCCGCGA

13710.2

AGGTTGGAGAAGGTCATGCAGGTGCAGATTGTCCAGGSKCAGCCACAGGGTCAAGCCCCAA
CAGGCCCAGAGTGGCACTGGACAGACCATGCAGGTGATGCAGCAGATCATCACTAACACA
GGAGAGATCCAGCAGATCCCGGTGCAGCTGAATGCCGGCCAGCTGCAGTATATCCGCTTA
CCCCAGCCTGTATCAGGCACTCAAGTTGTGCAGGGACAGATCCAGACACTTGCCACCAAT
GCTCAACAGATTACACAGACAGAGGTCCAGCAAGGACAGCAGCAGTTCAAGCCAGTTTAC
AAGATGGACAGCAGCTCTACCAGATCCAGCAAGTCACCATGCCTGCGGGCCANGACCTCG
CCAGCCCATGTTTATCCAGTCAAGCCAACCAGCCCTTCNACGGGCAGGCCCCCAGGTGAC
CGGCGACTGAAGGGCCTGACCTGGCAAGGCCAANGACACCCAACACAATTTTTGCCATAC
AGCCCCCAGGCAATGGGCACAGCCTTTCTTCCCAGAGGAC

13710-1

TGAGATTTATTGCCATTTTCATGCCAGCTTGAAGTCCATGCCAAAGGCGACTAGCACAGTTTTTA
ATGCATTTAAAAAATAAAAAGCGAGGTGGCCAGCAAAACACACAAGTCTAGTTTTCTGGG
TCCCTGGGAGAAAAGAGTGTGGCAATGAATCCACCCACTCTCCACAGGGAAATAATCTGT
CTCTTAAATGCAAAACAATGTTTCCATCGCCTCTGGATGCAAATACACAGAGCTCTGGGGTC
AGAGCAAGGGATGGGGAGAGGACCACGAGTGAAAAAGCAGCTACACACATTACCTAAT
TCCATCTGAGGGCAAGAACACAGTGGCAAGTCTTGUGGGTAGCAGCTGTT

13711.1

TCCAGACATGCTCCTGTCTAGCCCGGGGACCAGGAACCAGACCTGCTATGGGAAGCAGAA
AGAGTTAAGGGAAGGTTTCTTTTCATTCCTGTTCTTCTTTTGTGTTTGAACAGTTTTTA
AATATACTAATAGCTAAGTCAATTCGCCAGCCAGGTCCCGGTGAACAGTAGAGAACAAAGGA
GCTTGCTAAGAAATTAATTTTGCTGTTTTACCCCAATCAACAGAGCTGCCCTGTTCCCTG
ATGGAGTTCCATTCCTGCCAGGGCAGGGCTGAGTAACACGAAGCCATTCAAGAAAGGCGG
GTGTGAATCACTGCCACCCCATGGACAGACCCCTCACTCTTCTTCTTAGCCGCAGCGCT
ACTTAATAAATATAATTAATTTGAAATTAATGATAACCGATTTTCCCATCCGGCATCCTA
AGGGCACTTGCCAGCTCTTAATCCGGACAGTCAAGCACTGTTGTTGGACAACAGATAAAGG
AAAGCAAAAAGAAAGAAAACACCCGCAACTTCTGT

FIG. 15L

13711.2

TGAGACGGACCACTGGCCTGGTCCCCCTCATKTGCTGTCGTAGGACCTGACATGAAACGC
AGATCTAGTGGCAGAGAGGAAGATGATGAGGAACCTTCTGAGACGTGGCAGCTTCAAGAA
GAGCAATTAATGAAGCTTAACTCAGGCCTGGGACAGTTGATCTTGAAAGAAGAGATGGAG
AAAGAGAGCCGGGAAAGGTCACTCTGTTAGCCAGTCGCTACGATTCTCCCATCAACTCAG
CTTCACATATTCCATCATCTAAAACCTGCACTCTCCCTGGCTATGGAAGAAATGGGCTTCA
CCGGCCTGTTTCTACCGACTTCGCTCAGTATAACAGCTATGGGGATGTCAGCGGGGGAGTG
CGAGATTACCAGACACTTCCAGATGGCCACATGCCTGCAATGAGAATGGACCGAGGAGTG
TCTATGCCCCAACATGTTGGAACCAAAGATATTCCATATGAAATGCTCATGGTGACCAACA
GAGGGCCGAAACCAAATCTCAGAGAGGTGGACAGAA

13713.1&2

TCACTTTATTTTTCTTGTATAAAAAACCCTATGTTGTAGCCACAGCTGGAGCCTGAGTCCGCT
GCACGGAGACTCTGGTGTGGGTCTTGACGAGGTGGTCAGTGAACCTCTGATAGGGAGACT
TGGTGAATACAGTCTCCTTCCAGAGGTCCGGGGGTGAGGTAGCTGTAGGTCTTAGAAATGGC
ATCAAAGGTGGCCTTGGCGAAGTTGCCCAGGGTGGCAGTGCAGCCCCGGGCTGAGGTGTA
GCAGTCATCGATACCAGCCATCATGAG

13715.4

CTGGAATATAGACCCGTGATCGACAAAACCTTGAACGAGGCTGACTGTGCCACCGTCCCCG
CAGCCATTGCTCTCTACTGATGAGACAAGATGTGGTGAAGACAGAATCAGCTTTTGTAAAT
ATGTATAATAGCTCATCCATGTGTCCATGTCACTGCTTTTATACCGCTTCTGCACTCTGG
GGAAGAAGGAGTACATTGAAGGGAGATTGGCACCTAGTGGCTGGGAGCTTGGCAGGAACC
CAGTGGCCAGGGACCGTGGCACTTACCTTTGTCCCTTGCTTCATTCTTGTGAGATGATAAA
ACTGGGCACAGCTCTTAAATAAAATATAAATGAACA

13717.1&2

TGAATGGGGAGGAGCTGACCCAGGAAAATGGAGCTTGNMGAGACCAGGCCTGCAGGGGAT
GGAACCTTCCAGAAGTGGGCACTGTGTGGTGGTGCCTCTTGGGAAGGAGCAGAAGTACACA
TGCCATGTGGAACATGAGGGGCTGCTGAGCCCCCTCACCTGAGATGGGGCAAGGAGGAG
CCTCCTTCATCCACCAAGACTAACACAGTAATCAATTGCTGTTCCGGTTGTCTTGGAGCTGT
GGTCATCCTTGGAGCTGTGATGGCTTTTGTGATGAAGAGGAGGAGAAACACAGGTGGAAA
AGGAGGGGACTATGCTCTGGCTCCAGGCTCCAGAGCTCTGATATGTCTCTCCAGATTGT
AAAGTGTGAAGACAGCTGCCCTGGTGGACTTGGTGACAGACAATGTCTTCACACATCTCC
TGTGACATCCAGAGACCTCAGTCTCTTTAGTCAAGTGTCTGATGTTCCCTGTGAGTCTGG
GGCTCAAAGTGAAGAAGTGTGGAGCCCACTCCACCCCTGCACACCAGGACCCTATCCCTG
CACTGCCCTGTGTTCCCTTCCACAGCCAACTTGTGCTCCAGCCAAACATTGGTGGACAT
CTGCAGCCTGTGAGCTCCAATGCTACCCCTGACCTTCAACTCCTCACTTCCACACTGAGAATA
ATAATTTGAATGTGGGTGGCTGGAGAGATGGCTCAGCGCTGACTGCTCTTCCAAAGGTCT
GAGTTCAAATCCCAGCAACCACATGGTGGCTCACAACCATCTGTAATGGGATCTAATACCC
TCTTCTGCAGTGTCTGAAGACASCTACAGTGTACTTACATATAATAATAAATAAG

FIG. 15M

13719.1&2

GGCCGGGCGCGCGCGCCCCGCCACACGCACGCCGGGCGTGCCAGTTTATAAAGGGAGAG
AGCAAGCAGCGAGTCTTGAAGCTCTGTTTGGTGCTTTGGATCCATTTCCATCGGTCTTAC
AGCCGCTCGTCAGACTCCAGCAGCCAAGATGGTGAAGCAGATCGAGAGCAAGACTGCTTT
TCAGGAAGCCTTGGACCGCTGCAGGTGATAAACTTGTAGTAGTTGACTTCTCAGCCACGTGG
TGTGGGCCTTGCAAAATGATCAAGCCTTTCTTTCAATCCCTCTCTGAAAAGTATTTCCAACGT
GATATTCCTTGAAGTAGATGTGGATGACTGTCAGGATGTTGCTTCAGAGTGTGAAGTCAAA
TGCATGCCAACATTCAGTTTTTTAAGAAGGGGACAAAAGGTGGGTGAATTTTCTGGAGCCA
ATAAGGAAAAGCTTGAAGCCACCATTAAATGAATTAGTCTAATCATGTTTTCTGAAAATATA
ACCAGCCATTGGCTATTTAAAACCTTGTAATTTTTTTAATTTACAAAAATATAAAAATATGAA
GACATAAACCCMGTTGCCATCTGCGTGACAATAAACATTAATGCTAACACTT

13721.1

TCACATAAGAAATTTAAGCAAGTTACRCTATCTTAAAAAACACAACGAATGCATTTTAATA
GAGAAACCCTTCCCTCCCTCCACCTCCCTCCCCACCCTCCTCATGAATTAAGAATCTAAG
AGAAGAAGTAACCATAAAACCAAGTTTTGTGGAATCCATCATCCAGAGTGCTTACATGGT
GATTAGGTTAATAATTGCCCTTCTTACAAAATTTCTATTTTAAAAAAAATTATAACCTTGATTG
CTTATTACAAAAAAATTCAGTACAAAAGTTCAATATATTGAAAAATGCTTTTCCCTCCCT
CACAGCACCGTTTTATATATAGCAGAGAATAATGAAGAGATTGCTAGTCTAGATGGGGCA
ATCTTCAAATTACACCAAGACGCACAGTGGTTATTACCTCCCTTCTCATAAG

13721.2

GGAAAGGATTCAAGAAATTAGAGCACTTGCTTGCTRAGAAAAAGACAACCTCTCGTCCGAT
GCTGACAGACAAAGAGAGAGAGATGGCCGAAATAAGGGATCAAATGCAGCAACAGCTGA
ATGACTATGAACAGCTTCTTGATGTAAAGTTAGCCCTGGACATGGAAATCAGTGCTTACAG
GAAACTCTTAGAAGGCCAAGAAGAGAGCTTGAAGCTGTCTCCAAGCCCTTCTCCCGTGT
GACAGTATCCCGAGCATCCTCAAGTCTAGTGTACCGTACAACCTAGAGGAAAGCGGAAGA
GGGTTGATGTGGAAGAAATCAGAGCCGAAGTAGTAGTGTAGCATCTCTCAATCCGCTCAA
CCACTGGAAATGTTTGCATCGAAGAAATGATGTTGATGGGAAATTTATCCCGCTTGAAGA
ACACTTCTGAACAGGATCAACCAATGGGAAGGCTTGGGAGATGATCAGAAAAATTCGAGA
CACATCAGTCAGTTATAAAATATACCTCAA

13723.1

CATGGGTTTACCAGGTTGGCCAGGCTGCTCTTGAACSTCTGACCTCAGGTGATCCACCCG
CCTCGGCTCCCAAAGTGCTGGCAATACAGCCGTGAGCCACCACGCCCGGCCCCCAAGC
TGTTTCTTTTGTCTTTAGCGTAAAGCTCTCTGCCATGCAGTATCTACATAACTGACGTGAC
TGCCAGCAAGCTCAGTCACTCCGTGGTCTTTTCTCTTTCCAGTTCTTCTCTCTCTTCAAG
TTCTGCCTCAGTGAAAGCTGCAGGTCCCGAGTTAAGTGATCAGGTGAGGGTTCTTTGAACC
TGTTTCTATCAGTCGAATTAATCCTTCATGATGG

FIG. 15N

13723.2

GATGTGTTGGACCCTCTGTGTCAAAAAAACCTCACAAAGAATCCCCTGCTCATTACAGAA
GAAGATGCAFTTAAAAATATGGGTTATTTTCAACTTTTTATCTGAGGACAAGTATCCATTAA
TTATTGTGTCAGAAGAGATTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAGGAG
GTTGGCAGCAAGAACAATTTGAACATTATAAAATCAACTTTGATGACAGTAAAAATGGCC
TTTCTGCATGGGAACCTTATTGAGCTTATTGGAATGGACAGTTTAGCAAAGGCATGGACCG
GCAGACTGTGTCTATGGCAATTAATGAAGTCTTTAATGAACTTATATTAGATGTGTTAAAG
CAGGGTTACATGATGAAAAAGGGCCACAGACGGAAAACTGGACTGAAAGATGGTTTGTA
CTAAAACCCAACATAATTTCTTACTATGTGAGTGAGGATCTGAAGGATAAGAAAGGAGAC
ATTCTCTTGGATGAAAAATTGCTGTGTAGAAGTCCTTGCCTGACAAAAGATGGAAAGAAAT
GCCTTTT

13725.1

GACTGGTTCTTTATTTCAAAAAGACACTTGTCAATATTCAGTRTCAAAACAGTTGCACTATT
GATTTCTCTTTCTCCCAATCGGGCCCCAAGAGACCACATAAAAGGAGAGTACATTTTAAGC
CAATAAGCTGCAGGATGTACACCTAACAGACCTCCTAGAAACCTTACCAGAAAAATGGGGA
CTGGGTAGGGAAGGAACTTAAAAGATCAACAACTGCCAGCCCACGGACTGCAGAGGCT
GTCACAGCCAGATGGGGTGGCCAGGGTGGCCACAAACCCAAAGCAAAGTTTCAAAATAATA
TAAAAATTTAAAAAGTTTTGTACATAAGCTATTCAAGATTTCTCCAGCACTGACTGATACAA
AGCACAATTGAGATGGCACTTCTAGACACAGCAGCTTCAAACCCAGAAAAAGGGTGATGAG
ATGAAGTTTACATGGCTAAAACAGTGGCCAAAAACACAGTCTTCTTTCTTTCTTTCAA
GGANGCAGGAAAGCAATTAAGTGGTCACTTAAACATAAGGGGGAC

13725.2

TGGGTGGCCACCATGGCTGGGATCACCACCATCGAGCGGTGAAGCGCAAGATCCAGGTT
CTGCAGCAGCAGCCAGATGATGCAGAGGAGCCAGCTGAGCGCCTCCAGCGAGAAGTTGA
GGGAGAAAGCGGGCCCCGGGAACAGGCTGAGGCTGAGGTGGCCTCCTTGAACCGTAGGA
TCCAGCTGCTTGAAGAAGAGCTGGACCTGCTCAGGAGCGCCTGGCCACTGCCCTGCCAAA
AGCTGGAAGAAGCTGAAAAGCTGCTGATGAGACTGAGAGAGGTATGAAGGTTATTGA
AACC GGCCCTTAAAAGATCAAGAAAGATGGAAGTCCAGGAAATCCAAGTCAAAAGAGC
TAAGCACAATTGCAGAAGAGCCAGATAGGAAGTATGAAGAGGTGGCTCGTAAGTTGGTGAT
CATTGAAGGAGACTTGGAAACCCACAGAAAGCAACGAGCTTGAGCTTGGCAAAGTCCCGT
TGCCCAGAGATGGGATGAACCAGATTAGACTGATGGACCANAACC

13726.1&2

AGGGGCGNCGGGGTGCGTGGGGCACTGGGTGACCGACTTAGCCTGGCCAGACTCTCAGCAC
CTGGAAGCGCCCCGAGAGTGACAGCGTGAGGCTGGGAGGGAGGACTTGGCTTGAGCTTGT
TAAACTCTGCTCTGAGCCTCCTTGTGGCCTGCAATTAGATGGCTCCCGCAAAGAAGGGTGG
CGAGAAGAAAAGGGCCCTTCTGCCATCAACGAAGTGGTAACCCGAGAAATACACCATCAA
CATTACAAGCGCATCCATGGAGTGGCTTCAAAGAAGCGTGCACCTCGGGCACTCAAAGA
GATTGGAATAATTTGCCATGAAGGAGATGGGAAGTCCAGATGTGGCAATTGACACCAGGCT
CAACAAAGCTGTCTGGGCCAAAGGAATAAGGAATGTGCCATACCGAATCCGGTGTGGGGC
TGTCCAGAAAACGTAAATGAGGATGAAGATTACCAAAATAAGCTATATACTTTGGTTACCTA
TGTACCTGTTACCACTTTCAAAAAATCTACAGACAGTCAATGTGGATGAGAACTAATCGCTG
ATCGTCAGATCAAAATAAAGTTATAAAAT

FIG. 150

13727.1

TCGGGAGCCACACTTGGCCCTCTTCCTCTCCAAAGSGCCAGAACCTCCTTCTCTTTGGAGAA
TGGGGAGGCCCTCTTGGAGACACAGAGGGTTTCACCTTGGATGACCTCTAGAGAAATTGCC
CAAGAAGCCCCACCTTCTGGTCCCAACCTGCAGACCCACAGCAGTCAGTTGGTCAGGCCCT
GCTGTAGAAGGTCACTTGGCTCCAATTGCCTGCTTCCAACCAATGGGCAGGAGAGAAGGCC
TTTATTTCTCGCCACCCATTCTCCTGTACCAGCACCTCCGTTTTTCAGTCAGTGTTGTCCA
GCAACGGTACCGTTTACACAGTCACCTCAGACACACCAATTCACCTCCCTTGCCAAGCTGT
TAGCCTTAGAGTGATTGCAGTGAACACTGTTTACACACCGTGAATCCATTCCCATCAGTCC
ATTCCAGTTGGCACCAGCCTGAACCATTGGTACCTGGTGTTAACTGGAGTCCTGTTTACA
AGGTGGAGTCGGGGCTTGCTGACTTCTCTTCAATTTGAGGGCAC

13727.2

ACCTAGACAGAAGGTGGGTGAGGGAGGACTGGTAGGAGGCTGAGGCAATTCCTTGGTAGT
TTGTCTGAAACCCTACTGGAGAAGTCAGCATGAGGCACCTACTGAGAGAAGTGCCCA
AACTGCTGACTGCATCTGTTAAGAGTTAACAGTAAAGAGGTAGAAGTGTTTCTGAATCA
GAGTGAAGCGTCTCAAGGGTCCCACAGTGGAGGTCCCTGAGCTACCTCCCTTCCGTGAGT
GGGAAGAGTGAAGCCCATGAAGAACTGAGATGAAGCAAGGATGGGGTTCTGGGGCTCCA
GGCAAGGGCTGTGCTCTCTGCAGCAGGGAGCCCCACGAGTCAGAAGAAAAGAACTAATCA
TTTGTGCAAGAAACCTTGCCCGGATACTAGCCGAAAACCTGGAGGCGGNGGTGGGGGCAC
AGGAAAGTGGAAGTGATTGATGCAGAGCAGAGAAGCCTATGCACAGTGGCCGAGTCCAC
TTGTAAGTG

13728.1&2

TTCAAGCAATTGTAACAAGTATATGTAGATTAGAGTGAGCAAAATCATATACAATTTTCAT
TTCCAGTTGCTATTTTCCAAATTTGTTCTGTAATGTGTTAAAATTACTTAAAAATTAACAAA
GCCAAAAATATATTTATGACAAGAAAGCCATCCCTACATTAATCTTACTTTTCCACTCAC
CGCCCCATCTCCTTCTCTTTTCTTAATATGCCATTAAAACCTGTTCTACTGGGCGGGCG
TGTGGCTCATGCCGTGTAATCCACCAATTTGGGAGGCCAAGGCAGGCGGATCATGAGGTC
AAGAGATTGAGACCATCCTGGCCAACATGGTGAACCCCGCCTCGACTAAGAATACAAAA
ATTAGCTGGGCATGGTGGGCAATGCCGTGACTCTCAGCTACTCGGGAGGCTGAGCCAGAA
GAATCGCTTGAACCCGGGAGGCAGAGGATCCAGTGAGCCCCGATCGCGCCACTGCACTCT
AGCCTGGGCGACAGACTGAGACTCTGCTC

13731.1&2

TGTGCCAGTCTACAGCCCTATCAGCAGCGACTCCTTCAGCAACAGATGGGGTCCCCGTGTT
AGCCCAACCCCATGAGCCCCCAGGACCAATGCTCCCAATCAGGCCAGTCCCCACACCT
ACAAGGCCAGCAGATCCCTAATCTCTCTCCAATCAAGTGCGCTCTCCCCAGCCTGTCCCTT
CTCCACGGCCACAGTCCCAGCCCCCCTCCAGTCTCTCCCCAAGGATGCACCTCAGCC
TTCTCCACACCAGTTTCCCCACAGACAAGTTCCCCACATCCTGGACTGGTAGTTGCCAG
GCCAACCCCATGGAACAAGGGCAATTTGCCAGCC

FIG. 15P

13734.1&2

TGTA AAAA ACTTGT TTTTAA TTTTGTATA AAAATAA AGGTGGTCCATGCCACGGGGGCTGTA
 GGAAATCCAAGCAGACCAGCTGGGGTGGGGGGATGTAGCCTACCTCGGGGACTGTCTGT
 CCTCAAAACGGGCTGAGAAGCCCCGTCAGGGCCCCAGGTCCCACAGAGAGGCTGGGATA
 CTCCCCCAACCCGAGGGGCAGACTGGGCAGTGGGGAGCCCCCATCGTGCCCCAGAGGTGG
 CCACAGGCTGAAGGAGGGGGCCTGAGGCACCGCAGCCTGCAACCCCCAGGGCTGCAGTCCA
 CTAAC TTTTACAGAATAAAAGGAACATGGGGATGGGGAAAAAAGCACCAGGTCAAGGCA
 GGGCCCGAGGGCCCCAGATCCCAGGAGGGGCCAGGACTCAGGATGCCAGCACCACCCTAGC
 AGCTCCCACAGCTCCTGGCACAGGAGGGCCGCCACGGATTGGCACAGGCCGCTGCTGGCCA
 TCACGCCACATTTGGAGAACTTGTCCCGACAGAGGTCACTCGGAGGAGCTCCTCGTGGGC
 ACACACTGTACGAACACAGATCTCCTTGTTAATGACGTACACACGGCGGAGGCTGCGGGG
 ACAGGGCACGGGAGGTCTCAGCCCCACTT

13736.2

ATGGCTGCTGGATTTAGGTGGTAATAGGGGCTGTGGGCCATAAATCTGAAGCCTTGAGAA
 CCTTGGGTCTGGAGAGCCATGAAGAGGGAAGGAAAAGAGGGCAAGTCCTGAACCTAACC
 AATGACCTGATGGATTGCTCGACCAAGACACAGAAAGTGAAGTCTGTGTCTGTGCACTTCCC
 ACAGACTGGAGTTTTTGGTGCTGAATAGAGCCAGTTGCTAAAAAATTGGGGGTTTGGTGA
 AGAAATCTGATTGTTGTGTCTATTCAATGTGTGATTTAAAAATAAACAGCAACAACAATA
 AAAACCTGACTGGCTGTTTTTCCCTGTA TCTTTACA ACTATTTTTTGACCCTCTGAAAA
 TTATTATACTTCACCTAAA TGGAAAGACTGCTGTGTTTGTGGAAATTTTGTAA TTTTAA TT
 TATTTA TTTCTCTCTCTCTTTTATTTTCCCTGCAGAA TCCGTTGAGAGACTAATAAGGCTTA
 ATATTTAATTGATTTGT.TAATATGTATATAAAT

13744.2-13696.2

GGCATGCGAGCCCACTCGGCGCACGCAAGGGCGGGCGGGAGCACACGGAGCACTGCAGG
 CGCCGGGTTGGGACAGCGTCTTGGCTGCTGGATAGTCGTGTTTTCGGGGATCGAGGAT
 ACTCACCAGAAACCGAAAAATCCCGAAACCAATCAATGTCCGAGTTACCACCATGGATGCA
 GAGCTGGAGTTTGCAATCCAGCCAAATACA ACTGGAAAACAGCTTTTGTATCAGGTGCTA
 AAGACTATCGGCCTCCGGGAAGTGTGGTCTTGGCTCCACTATGTGGATAATAAAGGAT
 TTCTACCTGGCTGAAGCTCGATAAGAAGGTGCTCTGCCCAGGAGGTCAGGAAGGAGAATC
 CCTCCAGTTCAAGTTCCGGGCCAAAGTTCTACCTGAAGATGTGGCTGAGGAGCTCATCC
 AGGACATCACCCAGAAACTTTCTTCTTCAAGTGAAGGAAGGAATCCTTAGCGATGAGAT
 CTACTGCCCCCTTGARACTCCCGTCTCTTGGGGTCTACGCTTGTGCATGCCAAGTTTGG
 GGACTACCACCAAGAAG

13746.1&2-13720.1&2

GAAGGAGTGGGATACTCAGCAATGATGCCACCCCAATTTCAAAGCGGCATTCTTCGGCAG
 GTCTCTGGGACAATCTCTAGGGTCACTACCTGGCAAACTCGTTAGGGTACA ACTGAATGCTG
 AAAGGAAAGAACACCTGCAGAACCCGACAGAAATTCACCCCGCGCATCAGCTGATTGATC
 TCGGTGACACAGAAAGTCAATGGCTAAAGATGACGAGGACGTTGTCAATTCCTCGGGCTTTTC
 GAAGTGAGTCCAGCAGCAGCTCTGAGCTATTCGGCCCCGTTATGCACCTGGACCACAGCA
 CCAGCTCCCGGGGGGGCCAGGTCCCAGCCTTATCTACATTCTCAGGGTCTGATCAAAAGTT
 CAGCTGGTACACCAGGGACCGGTACCCGACCGCTCAGGTTGTCCGCTCGGGCTGGGGGACC
 GCCGGGACCAGGGAAGCCGGCCGACAGCTTGGAGACCCTGCGGATGCCCACAGCCACAGAG
 GGGTGGTCCCCACCGCGGGCCCGCCGACCCCGCGCGGCTTCGGCGTCCAGCAACGGTGGG
 GCGAGGGCCTCGTTCTTCTTTGTCCGCCATTGCTGCTCCAGAGGACGAAGCCGCAGGCGG
 CCACCAGGAGCGTCAGGATTAGCACCTTCCGTTTGTAGATGCGGAACCTCATGCTCTCCAG
 GCGCGGAGCGCTACAGCTCAGCGTCCGCGCGCGCGCTAGGAGCCGCGGCTCGGCT
 TCGTCTCCGTCCTCTCCAATCAGCACCCAGCGTCCCGGAAAAAGCTCAGCCSCGGTCCCAA
 CCGCACCTAGCTTCGTTACCTCGCGCTCGCTTG

FIG. 15Q

14347.1

CAGATTTTTATTTGCAGTCGTCAGTGGGGCCGTTTCTTGCTGCTTATTTGTCTGCTAGCCTG
CTCTTCCAGCTGCATGGCCAGGCCGAAGGCCTTGATGACATCTCGCAGGGCTGAGAAATGC
TTGGCTTGCTGGCCAGAGCAGATTCCGCTTTGTTACAAAGGTCTCCAGGTCATAGTCTG
GCTGCTCGGTCACTCAGAGAGCTCAAGCCAGTCTGGTCCTTGCTGTATGATCTCCTTGAG
CTCTTCCATAGCCTTCTCCTCCAGCTCCCTGATCTGAGTCATGGCTTCGTTAAAGCTGGACA
TCTGGGAAGACAGTTCCTCCTCTTCTTGGATAAAATTGCTGGAATCAGCGCCCCGTTAGA
GCAGGCTTCCATCTCTTCTGTTTCCATTTGAATCAACTGCTCTCCACTGGGCCCCACTGTGGG
GGCTCAGCTCCTTGACCCTGCTGCATATCTTAAGGGTGTTAAAGGATATTCACAGGAGCT
TATGCCTGGT

14347.2

CTCCTCTTGGTACATGAACCCAAAGTTGAAAGTGGACTTAACAAAGTATCTGGAGAACCAA
GCATTCTGCTTTGACTTTGCAATTTGATGAACAGCTTCGAATGAAGTTGTCTACAGGTTTAC
AGCAAGGCCACTGGTACAGACAATCTTTGAAGGTGGAAAAGCAACTTGTITTTGCATATGG
CCAGACAGGAAGTGGCAAGACACATACTATGGGCGGAGACCTCTCTGGGAAAGCCCAGAA
TGCATCCAAAGGGATCTATGCCATGGCCTTCCGGGACGTCTTCTTCTGAAGAATCAACCCT
GCTACCGGAAGTTGGGCTGGAAGTCTATGTGACATTCTTCGAGATCTACAATGGGAAGCT
GTTTGACCTGCTCAACAAGAAGGCCAAAGCTTGGCGTGCTGGAAGACGCCAAGCAACAGG
TGCAAGTGGTGGGGGCTTGCAGGAACATCTGGNTAACTCTGCTTGATGATGGCANTCAAG
ATGATCGACATGGCCAGCGCCTGCAGA

14348.2&14350.1&2

TCCCGAATTC.AAGCGACAAAATGGAWAGTGAATGGAAGATGCCTATCATGAACATCAGG
CAAATCTTTTCCGCCAAGATCTGATGAGACGACAGGAAGAAATTAAGACGCATGGAAGAAC
TTCACAATCAAGAAAATCCAGAAAACGTAAAGAAAATGCCAATTGAGGCAAGACGAGGAACGA
CGTAGAAGAGAGGGAAGAGATGATGATTCGTCAACGTGAGATGGAAGAACAATGAGGCG
CCAAAGAGAGGAAAAGTTACAGCCGAATGGGCTACATGGATCCACGGGAAAGAGACATGC
GAATGGGTGGCGGAGGAGCAATGAACATGGGAGATCCCTATGGTTACAGGAGGCCAGAAA
TTTCCACCTCTAGGAGGTGGTGGTGGCATAGGTTATGAAGCTAATCCTGGCGTTCCACCAG
CAACCATGAGTGGTTCCATGATGGCAAGTGACATGGCTACTGAGCGCTTTGGGCAGGGAG
GTGCGGGGCTGTGGGTGGACAGGGTCTTAGAGGAATGGCGCCTGGAACCTCCAGCAGGAT
ATGGTAGAGGGAGAGAAGAGTACGAAGGC

14349.1&2

TTCGTGAAGACCCCTGACTGGTAAGACCATCACTCTCGAAGTGGAGCCCGAGTGACACCAAT
GAGAAATGTCAAGGCCAAAGATCCAAAGACAAGGAAGGCATCCCTCCTGACCAGCAKAGGTTG
ATCTTTGCTGGGAAACAGCTGGAAGATGGACGCACCTGTCTGACTACAACATCCAGAAA
GAGTCCACCCCTGCACTGGTCTCCCTCTCAGAGGTGGATGCAAATCTTCTGTGAAGACCC
TGACTGCTAAGACCATCACCCCTGAGGTGGAGCCCAAGTGACACCATCGAGAAATGTCAAGG
CAAAGATCCAAAGATAAGGAAGGCATCCCTCTGATCAGCAGAGGTTGATCTTTGCTGGGA
AACAGCTGGAAGATGGACGCACCTGTCTGACTACAACATCCAGAAAGAGTCCACTCTGC
ACTTGGTCTCTCGCTTGAGGGGGGCTGTCTAAGTTTCCCTTTTAAGGTTTCAACAAATTTT
ATTGCACTTTCCTTTCAATAAAGTTGTTGCATTG

FIG. 15R

14352.1&2

GCGCGGGTGCGTGGGGCCACTGGGTGACCGACTTAGCCTGGCCAGACTCTCAGCACCTGGA
AGCGCCCCGAGAGTGACAGCGTGAGGCTGGGAGGGAGGACTTGGCTTGAGCTTGTTAAAC
TCTGCTCTGAGCCTCCTTGTCGCTGCAATTAGATGGCTCCCGCAAAGAAGGGTGGCGAGA
AGAAAAAGGGCCGTTCTGCCATCAACGAAGTGCTAACCCGAGAATACACCATCAACATTC
ACAAGCGCATCCATGGAGTGGGCTTCAAGAAGCGTGACCTCGGGCACTCAAAGAGATTC
GGAAATTTGCCATGAAGGAGATGGGAACCTCCAGATGTGCGCATTGACACAGGCTCAACA
AAGCTGTCTGGGCCAAAGGAATAAGGAATGTGCCATACCGAATCCGTGTGCGGCTGTCCA
GAAAACGTAATGAGGATGAAGATTCACCAATAAGCTATATACTTTGGTTACCTATGTACC
TGTTACCACTTTCAAAAATCTACAGACAGTCAATGTGGATGAGAACTAATCGCTGATCGT

14353.1

AATTCTTTATTTAAATCAACAAACTCATCTTCTCAAGCCCCAGACCATGGTAGGCAGCCC
TCCCTCTCCATCCCCTCACCCACCCCTTAGCCACAGTGAAGGGAATGGAAAATGAGAAGC
CACGAGGGCCCCCTGCCAGGGAAGGCTGCCCCAGATGTGTGGTGAGCACAGTCAGTGCAGC
TGTGGCTGGGGCAGCAGCTGCCACAGGCTCCTCCCTATAAATTAAAGTTCCTGCAGCCACAG
CTGTGGGAGAAGCATACTTGTAGAAGCAAGGCCAGTCCAGCATCAGAAGGCAGAGGCAG
CATCAGTGACTCCCAGCCATGGAATGAACGGAGGACACAGAGCTCAGAGACAGAACAGG
CCAGGGGGGAAGAAGGAGAGACAGAATAGGCCAGGGCATGGCGGTGAGGGA

14353.2

TGATGAATCTGGGTGCCCTGGCAGTACCCCGAGATGATGGGCTCTTCTCTGGGGATCCCAA
CTGGTTCCCTAAGAAAATCCAAGGAGAATCCTCGGAACCTTCTCGGATAACCAGCTGCAAGA
GGGCAAGAACGTGATCGGTTACAGATGGGCAACCAACCGCGGGCGTCTCANGCAGGCAT
GACTGGCTACGGGATGCCACGCCAGATCCTCTGATCCCACCCAGGGCTTGCCCTGCCCT
CCCACGAATGGTTAATATATATGTAGATATATATTTTAGCAGTGACATTCCCAGAGAGGCC
CAGAGCTCTCAAGCTCCTTCTCTCAGGGTGGGGGTTCAAGCCTGTCTGTACCTCTGA
AGTGCTGTCTGGCATCCTCTCCCCCATGCTTACTAATACATTCCCTTCCCCATAGCC

17182.1&2

AGCGGAGCTCCCTCCCCTGGTGGCTACAACCCACACACGCCAGGCTCAGGCATCGAGCAG
AACTCCAGCGACTGGGTAACTACTGACATTCAGGTGAAGGTGCGGGACACCTACCTGGAT
ACACAGGTGGTGGGACAGACAGGTGTATCCGCAGTGTACGGGGGGGCAATGTGCTCTGTG
TACCTGAAGGACAGTGAGAAGGTTGTCAGCAATTCAGTGAGCACCTGGAGCCTATCACCC
CCACCAAGAACAACAAGGTGAAAGTGATCCTGGGCGAGGATCGGGAAAGCCACGGGCGT
CCTACTGAGCATTTGATGGTGAGGATGCCATTTGTCCGTATGGACCTTGATGAGCAGCTCAAG
ATCCTCAACCTCCGCTTCTCTGGGAAGCTCCTCGAAGCCTGAAGCAGGCAGGGCCGCTGG
ACTTCGTGGATGAAGAGTGATCTCTCTCTCTCCCTGGCCCTTGGCTGTGACACAAGATC
CTCCTGCAGGGCTAGCGCGATTGTTCTGGATTCTTTTGTCTTTTCTTTTAGGTTTCCATCT
TTTCCCTCCCTGGTGTCTATTGGAATCTGAGTAGAGTCTGGGGGAGGGTCCCCACCTTCT
GTACCTCCTCCCCACAGCTTCTTTGTTGTACCGTCTTTCAATAAAAAGAAGCTGTTTGGT
CTA

FIG. 15S

17183.2

GGTTCACAGCACTGCTGCTTGTGTGTTGCCGGCCAGGAATTCAGGCTCACAAAGGCTATCT
TAGCAGCTCGTTCTCCGGTTTTAGTGCCATGTTTGAACATGAAATGGAGGAGAGCAAAAA
GAATCGAGTTGAAATCAATGATGTGGAGCCTGAAGTTTTAAGGAAATGATGTGCTTCATT
TACACGGGGAAGGCTCCAAACCTCGACAAAATGGCTGATGATTTGCTGGCAGCTGCTGAC
AAGTATGCCCTCGAGCGCTTAAAGGTCAATGTGTGAGGATGCCCTCTGCAGTAACCTGTCCG
TGGAGAACGCTGCAGAAATTCTCATCTGGCCGACCTCCACAGTGCAGATCAGTTGAAAA
CTCAGGCAGTGGATTTCATCAACTATCATGCTTCGGATGTCTTGGAGACCTCTTGGG

17186.1&2

TCGTAGCCATTTTTCTGCTTCTTTGGAGAATGACGCCACACTGACTGCTCATTGTGCTTGGT
TCCATGCCAATTGGTGAAATAGAACCCTCATCCGGTAGTGAGCCGGAGGGACATCTTGTG
ATCAACGGTGATGGTGCGATTGGAGCATACAGAGCTTGGTGTCTCGCCATACAGGGCA
AAGAGGTTGTGACAAAGAGGAGAGATACGGCATGCCTGTGCAGCCCTGATGCACAGTTCC
TCTGCTGTGTACTCTCCACTGCCCCAGCCGGAGGGGCTCCCTGTCCGACAGATAGAAGATCA
CTTCCACCCCTGGCTTG

17187.1&2

TGGCACACTGCTCTTAAGAAACTATGAWGATCTGAGATTTTTTGTGTATGTTTTGACTCT
TTTGAGTGGTAATCATAATGTGTCTTTATAGATGTACATACCTCCTTGCACAAATGGAGGGG
AATTCATTTTCATCACTGGGAGTGTCTTAGTGATATAAAAACCATGCTCGTATATGGCTTC
AAGTTGTAAAAATGAAAGTCACTTAAAAAGAAAATAGGGGATGGTCCAGGATCTCCACTG
ATAAGACTGTTTTAAGTAACTTAAGGACCTTGGGTCTACAAGTATATGTGAAAAAAATG
AGACTTACTGGGTGAGGAAATTCATTGTTTAAAGATGGTGGTGTGTGTGTGTGTGTGTGT
TGTGTTGT
ACTGKGTAAATATATGTYTGATAATGATTTGCTTGTGVTGVMACATAAAATTACGVCTGTATA
AGTWCTARATGCMTCCTCGGKSTTGATYTTCMAGATATTGATGATAMCCCTTAAAAATT
GTAACCYGCCTTTTCCCTTTCCTYTCTMAATTAAGTCTATTCTMAAAG

17191.1&39.1

GGGGGTAGGCTCTTTATTAGACGGTTATGCTGTACTACAGGGTCAGAGTGCAGTGTAAGC
AGTGTCAGAGGCCCCGCTTCAGCCCAAGAATGTGGATTTTCTCTCCCTATTGATCACAGTG
GGTGGGTTTCTTCAGAAAAGCCCCAGAGGCAGGACCAAGTGAAGTCCAAAGGTTAGAAGTG
GAACTGGAAGGCTTCAGTCACATGCTGCTTCCACGCTTCCAGGCTGGCCAGCAAGGAGGA
GATGCCCATGACGTGCCAGGTCTCCCATCTGACACCAAGTGAAGTCTGGTAGGACAGCAG
CCGCACGCCTGCCTCTGCCAGGAGGCCAATCATGGTAGGCCACCATTCAGGGTCAAGAGGT
CTGAGTCCGGAATAGGAGCAGGGGCAGGTCCCTGCGGAGAGGCATTCTGGCCTGAAGAC
AGCTCCATTGAGCCCCCTGCAGTACAGGYGTAGTGCCCTTGGACCAAGCCCAAGCCTGGTA
AGGGCCGCTGCCAGGGCCACGGCCAGGAGCCA

FIG. 15T

17192.1&2

TAATTTCTTAGTCGTTTGGGAATCCTTAAGCATGCAAAAGCTTTGAACAGAAGGGTTCACAA
AGGAACCAGGGTTGTCTTATGGCATCCAGTTAAGCCAGAGCTGGGAATGCCTCTGGGTTCAT
CCACATCAGGAGCAGAAGCACTTGACTTGTGCGTCTGCTGCCACGGTTTGGGCGCCCACC
ACGCCCACGTCCACCTCGTCCTCCCTGCGGCCACGTCTGGGCGGCCAAGGTCTCCAAAA
TTGATCTCCAGCTGAGACGTTATATCATTTGCTGGCTTCCGGAATGATGGTCCATAACCG
AATCTTCAGCATGAGCCTCTTCACTCTTTGATTTATGAAGAACAAATCCCTTCTTCCACTGC
CCATCAGCACCTTCAATTTGGTTTTCCGATATTAATTTCTACTTTTGGCCGGTCTTATTTTGA
ATAGCCTTCCACTCATCCAAAGTCATCTCTTTTGGACCCTCTCTTTTACCTCTTCAACTTCA
TTCTCCTTATTTTCAGTGTCTGCCACTGGATGATGTTCTTACCTTCAGGTGTTTCTCAGTC
ACATTTGATTGATCCAAGTCAGTTAATTCGTCTTTGACAGTTCCCCAGTTGTGAGATCCGCT
ACCTCCACGTTTGTCTCGTCTCAGGCCAGATCTATCACTTCCACTATGCCTATCAAAAT
CACGTTTGGCACGAGAATCAAATCCATCTCTCGGCCCATTCACGTCCACGGCCCCCTCG
ACCTCTTCCAAGACCACCACGACCTCGAATAGGTGGTCAATAATCGGTCTATCAACTGAA
AATTCGCCTCCTTCACTCTTTCTTCAAGTGGCTTTTGAATCTTCTGTTACGAGGTGGTCTG
CCTTCTGGTCTTCTATCAATTAATTTCCCTTCACTCTGAAGTTGTTGATCAGGTCTTCTTCC
AACTCGTGC

17193

AAGCGGATCGACCTGAGTCAGCCGAATCCTAGCCCCCTTCCCTTGGCCCTGCTGTGGTGCTC
GACATCAGTGACAGACCGAAGCAGCAGACCATCAAGGCTACGGGAGGCCCGGGCGCTT
GCGAAGATGAAGTTTGGCTGCTCTCTTCCGGCAGCCTTATGCTGGCTTTGTCTTAAATG
GAATCAAGACTGTGGAGACCGCTCGCGTCTGCTGAGCAGCCAGCGGA.ACTGTACCA
TCGCCGTCCACATTGCTCAGGGGACTGGGAAGCGGATGCCTGTCCGGAGCTGCTGGTGG
AGAGACTCGGCGATGACTCCTGCTCAGATTCAAGCCCTTCTCAGGAAGGGG.AAAAGTTTG
GTCGACGAGTGATAGCGGGACTCGTTGACATTGGGGAACTTTGCAATGCCCGAAGACT
TAACTCCCGATCAGGTTGTGGAACTAGAAAATCAAGCTGCACTGACCAACCTGAAGCAGA
AGTACCTGACTGTGATTTCAAACCCAGGTGGTTACTGGAGCCCATACTTGGAAAGGAG
GCAAGGATGTATTCCAGGTAGACATCCACAGCACCTGATCCCTTTGGGGCATGAAGTGT
GACAAGTGTGGGCTCCTGAAAGCAATGTTCCRGAGAAACCAGCTAAATCATGGCACCTTC
AATTTGCCATCGTGACGCAGACCTGTATAAAATAGGTTAAAGATGAATTTCCACTGCTTTG
GAGAGTCCCACCCACTAAGCACTGTGCAATGTAAACAGGTTCTTTGCTCAGATGAAGGAA
GTAGGGGGTGGGGCTTTCTTGTGTGATGCCTCCTTAGCCACACACCCCAATGTCTCAAGTA
CTTTGACCTTAGGGTAGAAGCCAAAGCTGCCAGTAAATGTCTCAGCATTGCTGCTAAATTT
GGTCTGCTAGTTCTCGATTGTACAAATAAATGTGTTGTAGATGA

FIG. 15U

16443.1.edit

TCGAGCGGCCGCCCCGGGCAGGTGTGGAGTCCAGCACGGGAGGCGTGGTCTTGTAGTTGT
TCTCCGGCTGCCCCATTGCTCTCCCACTCCACGGCGATGTCGCTGGGATAGAAGCCTTTGAC
CAGGCAGGTGAGGCTGACCTGGTTCTTGGTCATCTCCTCCCGGGATGGGGGCAGGGTGTAC
ACCTGTGGTTCTCGGGGCTGCCCTTTGGCTTTGGAGATGGTTTTCTCGATGGGGGCTGGGA
GGGCTTTGTTGGAGACCTTGCACTTGTACTCCTTGCCATTCAACCAGTCCTGGTGCANGAC
GGTGAGGACGCTNACCACACGGTACGNGCTGGTGTACTGCTCCTCCCGCGGCTTTGTCTTG
GCATTATGCACCTCCACGCGTCCACGTACCAATTGAACCTGACCTCAGGGTCTTCGTGGC
TCACGTCCACCACCACGCATGTAACCTCAAANCTCGGNCGCGANACGC

16443.2.edit

AGCGTGGTTCGCGGCCGAGGTCTGAGGTTACATGCGTGGTGGTGGACGTGAGCCACGAAGA
CCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAA
GCGCGGGAGGAGCAGTACAAACAGCACGTACCGTGTGGTCAGCGTCCTCACCGTCTTGCA
CCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCAGC
CCCCATCGAGAAACCATCTCCAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTACAC
CCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTACGCTGACCTGCCTGGTCAA
AGGCTTCTATCCCAGCGACATCGCCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACA
ACTACAAGACCACGCCTCCCGTGCTGCACTCCGACACCTGCCGGGCGGCCGCTCGA

16444.2.edit

AGCGTGGTTNCGGCCGAGGTCCCAACCAAGGCTGCANCTGGATGCCATCAAAGTCTTCTG
CAACATGGAGACTGGTGACACCTGCGGTACCCCACTCAGCCCAGTGTGCCCCAGAAGAA
CTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGGTTCCGGCAGAGCATGAC
CGATGGATTCCAGTTCGAGTATGCCCGCCAGGCTCCGACCCTGCCGATGTGGACCTGCCC
GGGCGGNCGCTCGA

16445.1.edit

AGCGTGGTTCGCGGCCGAGGTCAAGAACCCTCGCCGACCTGCCGTGACCTCAAGATGTGC
CACTCTGACTGGAAGAGTCCAGACTACTGGATTGACCCCAACCAAGGCTGCAACCTGGAT
GCCATCAAAGTCTTCTCCAACAATGGAGACTGGTGAGACCTGCGTGTACCCCACTCAGCCCA
GTGTGGGCCAGAACTGGTACATCAGCAAGAACCCTAAGGACAAGAGGCATGTCTGGT
TCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCAGGGCTCCGACCCTG
CCGATGTGCACCTGCCCGGGCGGCCGCTCGA

FIG. 15V

16445.2.edit

TCGAGCGGTGCGCCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCGATCGGNCATGCTCTCGCCGAACCAGACATGCCTCTTGNCCTTGGGGTTCT
TGCTGATGTACCAGNTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
ANTCTCCATGTTGCANAAGACTTTGATGGCATCCAGGTTGCAGCCTTGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGACAGAGTGGCACATCTTGAGGTCACGGCAGGTGCGGGCGG
GGTCTTGACCTCGGTGCGGACACGCT

16446.1.edit

TCGAGCGGCCGCGCCCGGGCAGGTCTCTCAGAGCGGTAGCTGTTCTTATTGCCCCGGCAGC
CTCCATAGATNAAGTTATTGCANGAGTTCCTCTCCACGTCAAAGTACCAGCGTGGGAAGG
ATGCACGGCAAGGCCAGTGACTGCGTTGGCGGTGCAGTATTCTTCATAGTTGAACATATC
GCTGGAGTGGACTTCAGAACTCTGCCTTCTGGGAGCACTTGGGACAGAGGAATCCGCTGC
ATTCTGCTGGTGGACCTCGGCCGCGACACGCT

16446.2.edit

AGCGTGGTGCGGGCCGAGGTCCACCACCAGGAATGCAGCGGATTCCTCTGTCCCAAGTGC
TCCCAGAAGCCAGGATTCTGAAGACCACTCCAGCGATATGTTCAACTATGAAGAATACTG
CACCGCCAACGCAGTCACTGGGCCCTTGCCGTGCATCCTTCCCACGCTGGTACTTTGACGTG
GAGAGGAACCTCTGCAATAACTTCATCTATGGAGGCTGCCGGGGCAATAAGAACAGCTAC
CGCTCTGAGGAGGACCTGCCCGGGCGGGCGCTCGA

16447.1.edit

TCGAGCGGCCGCGCCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTGATGCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCT
TGCTGATGTACCAGTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
AGTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGCCAGAAATGGCACATCTTGAGGTCACGGCANGTGCGGGCGG
GGTCTTGACCTCGGCCGCGACACGCT

FIG. 15W

16447.2.edit

AGCGTGGTCCGCGCCGAGGTCAAGAAACCCCGCCCCGACCTGCCGTGACCTCAAGATGTG
CCTCTGGCTGGAAGAGTGGAGAGTACTGGATTGACCCCAACCAAGGCTGCAACCTGGA
TGCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCCGTGACCCCACTCAGCCC
AGTGTGGCCCAGAAGAAGTGGTACATCAGCAAGAACCCCAAGGACAAAGAGGCATGTCTGG
CTCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCAGGGCTCCGACCCT
GCCGATGTGGACCTGCCCGGGCGGCCGCTCGA

16449.1.edit

AGCGTGGTCCGCGCCGAGGTCTGTCAAGTGGCACTGGTAGAAGNTCCAGGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTG
CTGNAATGGGGCCCATGANATGGTTGCTGAGAGAGAGCTTCTTGTCTACATTCCGGCGG
GTATGGTCTTGGCCTATGCCCTATGGGGGTGGCCGTTGNGGGCGGTGNGGTCCGCCTAAAA
CCATGTTCTCAAGATCAITTTGTTGCCCAACACTGGGTTGCTGACCANAAGTGCCAGGAA
GCTGAATACCAITTTCCAGTGTCAATCCAGGGTGGGTGACGAAAGGGGTCTTTTGAAGTGT
GGAAGGAACATCCAAGATCTCTGNTCCATGAAGATTGGGGTGTGGAAGGGTTACCAGTTG
GGGAAGCTCGCTGTCTTTTCTCTCCAATCANGGGCTCGCTCTTCTGAATATTCTTCAGGGC
AATGACATAAATTGTATATTCGGTTCCCCGTTCCAGGCCAG

16450.1.edit

TCGAGCGCCCGCCCGCCGAGGTCCACCACCCCAATTCCTTGCTGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGCTACATCAAGTATGAGAAGCCTGGGTCTCTCTCCAGAGA
AGTGGTCCCTCGCCCCCGCCCTGGTGTCAAGAGGCTACTATTACTGGCCTGGAACCGGGA
ACCGAATATACAAATTTATGTCAATGCCCTGAAGAAATAATCAGAAGACCGAGCCCTGATTG
GAAGGAAAAAGACAGACGAGCTTCCCAACTGGTAACCCCTTCCACACCCCAATCTTCATG
GACCAGAGATCTTGGATGTTCTTCCACAGTTCAAAAGACCCCTTTCGTACCCACCCTGG
GTATGACACTGGAAATGGTATTACGTTCTCTGGCACTTCTGCTCAGCAACCCAGTGTGGG
CAACAAATGATCTTTGANGAACAATGCTTTAGGCGGACCACACCGGCCACAACGGGGCACC
CCATAAGGCATAGGCCAAGAACAATCCGNCGAATGTAGGACAAGAAGCTCTNTCTCAN
ACAANCATCTCATGGGCCCCATTCCANGACACTTCTGAGTACATCANTTCATGGCATCTGT
GTGGCACTGATAAAAAACCTTACAGTTA

16450.2.edit

AGCGTGGTCCGCGCCGAGGTCTGTCAAGTGGCACTGGTAGAAGTTCCAGGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTG
CTGGAATGGGGCCCATGAGATGGTTGCTGTGAGAGAGAGCTTCTTGTCTACATTCCGGCGG
TATGGTCTTGGCCTATGCCCTATCGGGGTGGCCGTTGTGGGCGGTGTGGTCCGCCTAAAC
CATGTTCTCAAGATCAITTTGTTGCCCAACACTGGGTTGCTGACCAGAAGTGCCAGGAAG
CTGAATACCAITTTCCAGTGTCAATCCAGGGTGGGTGACGAAAGCGGTCTTTTGAAGTGTG
GAAGGAACATCCAAGATCTCTGGTCCATGAAGATTGGGGTGTGGAAGGGTTACCAGTTGG
GGAAGCTCGTCTGTCTTTTCTCTCCAATCANGGGCTCGCTCTTCTGAATATTCTTCAGGGC
AATGACATAAATTGTATATTCGNTCCCGGTTNCAGCCAATAATAAACCCTCTGTGACA
CCANGCGGGCCCCGAAGGANCAT

FIG. 15X

16451.1.edit

AGCGTGGTCGCGGCCGAGGTCTCACCAGAGGTACCACTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAGGTTTCGGGAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGTTTCCCATT
ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAGTG
CTTANGCTTTGGAAGTGGTCATTTTCAGATGTGATTTCATCTAGATGGTGCCATGACAATGGT
GTGAACTACAAGATTGGAGAGAAGTGGGACCGTCAGGGAGAAAAATGGACCTGCCCCGGGC
GGCCGCTCGA

16451.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTACACCAATTGTCTATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTTCATCCGTAGGTTGGTTCAAG
CCTTCGNTGACAGAGTTGCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGT
CTTTCAGTGCCTCCACTATGATGTTGTAGGTGGTACCTCTGGTGAGGACCTCGGCCGCGAC
CACGT

16452.1.edit

AGCGTGGCCCGCGGCCGAGGTCCATTGGCTGGAACGGCATCAACTTGGAAGCCAGTGATCG
TCTCAGCCTTGGTTCTCCAGCTAATGGTGATGGNGGTCTCAGTAGCATCTGTACACGAGC
CCTTCTTGGTGGGCTGACATTTCTCCAGAGTGGTGACAACACCCCTGAGCTGGTCTGCTTGT
AAAGTGTCTTAAGA SCATAGACACTCACTTCATA TTTGGCGNCCACCATAAGTCTGATA
CAACCACGGAATGACCTGTCAGGAAC

16452.2.edit

TCGACCGGCCCGCCCCGGGCAGGTCTCAGACCGGGTTCTGAGTACACAGTCAGTGTGGTTGC
CTTGCACGATGATATGGAGAGCCAGCCCCCTGATTGGAACCCAGTCCACAGCTATTCTTGCA
CCAAGTACCTGAAGTTCACCTCAGGTACACCCACAAGCCTGAGCGCCCAAGTGGACACCA
CCCAATGTTTCAGCTCACTGGATATCGAGTGGGGTGACCCCCAAGGAGAAGACCGGACCA
ATGAAAGAAATCAACCTTGCTCCTGACAGCTCATCCGTGGTTGTATCAGGACTTATGGCGG
CCACCAAAATATGAAGTGAAGTGTCTATGCTCTTAAGGACACTTTGACAAGCAGACCAGCTCA
GGGTGTTGTCACCACTCTGGAGAATGTACCCCCACCAAGAAGGGCTCGTGTGACAGATGC
TACTGAGACCACCATCACCATTAGCTGGAGAACCAAGACTGAGACGATCACTGGCTTCCA
AGTTGATGCCGTTCCAGCCAATGGACCTCGCCCGCCACCACGCTT

FIG. 15Y

16453.1.edit

AGCGTGGTCCGCGCCGAGGTCTGGCCGA¹ACTGCCAGTGTACAGGGAAGATGTACATGTTA
TAGNTCTTCTCGAAGTCCCGGGCCAGCAGCTCCACGGGGTGGTCTCCTGCCTCCAGGCGCT
TCTCATTCTCATGGATCTTCTTCACCCGCAGCTTCTGCTTCTCAGTCAGAAGGTTGTTGTCC
TCATCCCTCTCATA²CAGGGTGACCAAGGACGTTCTTGAGCCAGTCCCGCATGCGCAGGGGGA
ATTGCGTCAGCTCAGAGTCCAGGCCAAGGGGGGATGTATTTGCAAGGCCCGATGTAGTCCA
AGTGGAGCTTGTGGCCCTTCTTGGTGCCCTCCAAGGTGCACTTTGTGGCAAAGAAGTGGCA
GGAAGAGTCGAAGGTCTTGTGTGCAATTGCTGCACACCTTCTCAA³ACTCGCCAATGGGGGCT
GGCAGACCTGCCCGGGCGGCCGCTCGA

16453.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCTGCCAGCCCCCATTGGCGAGTTTGAGAAGGNGTGCA
GCAATGACAACAAGACCTTCGACTCTTCTGCCACTTCTTTGCCACAAAGTGCACCCTGGA
GGGCACCAAGAAGGGCCACAAAGCTCCACCTGGACTACATCGGGCCTTGCAAATACATCCC
CCCTTGCTGGACTCTGAGCTGACCGAA⁴TTCCCCCTGCGCATGCGGGACTGGCTCAAGAAC
GTCCTGGTCA⁵CCCTGTATGAGAGGGATGAGGACAACAACCTTCTGACTGAGAAGCANAAG
CTGCGGGTGAAGAANATCCATGAGAATGANAAGCGCCTGNAGGCANGAGACCACCCCGT
GGAGCTGCTGCCCCGGGACTTCGAGAAGAACTATAACATGTACATCTTCCCTGTACACTGG
CAGTTCGGCCAGACCTCGGCCGCGACCACGCT

16454.1.edit

AGCGTGGNTGCGGACGACGCCACAAAGCCA⁶TTGTATGTAGTTTTANTTCAGCTGCAAAN
AATACCNCCAGCATCCACCTTACTAACCAGCATATGCAGACA

16454.2.edit

TCGAGCGGTCCCGCCGCGCAGGTCTGGGCGCATAGCACCGGGCATATTTTGGAATGGATGA
GGTCTGGCACCCCTGAGCAGCCAGCCAGCAGCTTGGTCTTAGTTGAGCAATTTGGCTAGGA
GGATAGTATGCAGCACCGTTCTGAGTCTGTGGGATAGCTGCCATGAAGNAACCTGAAGGA
GGCGCTGGCTGCTANGCGTTGATTACAGGGCTGGGAACAGCTCGTACACTTGCCATTCTCT
GCATATACTGGNTAGTGAGGCCAGCCTGGCGCTCTTCTTTGCGCTGAGCTAAAGCTACATA
CAATGGCTTTGNGGACCTCGGCCGCGACCACGCTT

FIG. 15Z

16455.1.edit

TCGAGCGGCCCGCCCGGGCAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACEATTGTGATGACACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGGCACAACAGTTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAAAGTTGCCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGT
CTFTCAAGTGCCTCCACTATGATGTTGTAGGTGGCACCTCTGGTGAGGACCTCGGCCGCGA
CCACGCT

16455.2.edit

AGCGTGTTTTCGGGCCGAGGTCTCTACCANAGGTGCCACCTACAACATCATAGTGAGGAGGC
ACTGAAAGACCAGCAGAGGCATAAGGTTTCGGGAAGAGGTTGTTACCGTGGGCAACTCTGT
CAACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGNTTCCCAT
TATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAGT
GCTTANGCTTTGGAAGTGGTCATTTGAGATGTGATTCATCTANATGGTGTCATGACAATGG
TGNGAACTACAAGATTGGAGAGAAAGTGGNACCGTCAGGGGANAAAAATGGACCTGCCCGG
GCGGCNCGCTCGA

16456.1.edit

AGCGTGGTTCGGGCCGAGGTCTGGCTTCTGCTCANGTGATTATCCTGAACCATCCAGGCC
AAATAAGCGCCGGCTATGCCCTGNAATTCGATTGCCACACGGCTCACATTGCATGCAAGTT
TGCTGAGCTCAAGGAAAACATTGATC

16456.2.edit

TCGAGCGGCCCGCCCGGGCAGGTCCAAATTGAAACAAACAGTTCTGAGACCGTTCTTCCACCA
CTGATTAAGAGTGGCCGCGCGGTATTAGGGATAATATTCAATTAGCCTTCTGAGCTTTCT
GGGCAGACTTGGTGACCTTGCCAGCTCCAGCAGCTTCTGGTCCACTGCTTTGATGACACC
CACCGCAACTGTCTGTCTCATATCACGAACAGCAAAGCGACCCAAAGGTGGATAGTCTGA
GAAGCTCTCAACACACATGGGCTTCCAGGAACCATATCAACAATGGGCAGCATCACCAG
ACTTCAAGAAATTAAGGGCCATCTTCCAGCTTTTACCAGAACGGCGATCAATCTTTTCCTT
CAGCTCAGCAAACCTTCCATGCCAATGTGAGCCG

FIG. 15AA

16459.1.edit

TCGAGCGGGCGCCCGGGCAGGTCCAGAGGGCTGTGCTGAAGTTTGCTGCTGCCACTGGAG
CCACTCCAATTGCTGGCCGCTTCACTCCTGGAACCTTCACTAACCAGATCCAGGCAGCCTT
CCGGGAGCCACGGCTTCTTGTGGNTACTGACCCAGGGCTGACCACCAGCCTCTCACGGAG
GCATCTTATGTTAACCTACCTACCAATGCGCTGTGTAACACAGATTCTCCTCTGCGCTATGT
GGACATTGCCATCCCATGCAACAACAAGGGAGCTCACTCAGNNGGGTTTGA TGTGGTGGGA
TGCTGGCTCGGGAAGTTCTGCGCATGCGTGGCACCATTTCCTGTGAACACCCATGGGANGN
CATGCCTGATCTGGACTTCTACAGAGATCCTGAAGAGATTGAAAAAGAAGAACAGGCTGN
TTGCTGANAAAGCAAGTGACCAAGGANGAAAATTCANGGGTGAAANGGACTGCTCCCGCT
CCTGAATTCAGTGTACTCAACCTGANGNTGCAGACTGGTCTTGAAGGNGNACANGGGCC
CTCTGGGCCTATTTAAGCANCTTCGGTTCGCGAACACGNT

16459.2.edit

AGCGTGNGTCGCGGGCCGAGGTGCTGAATAGGCACAGAGGGCACCTGTACACCTTCAGACC
AGTCTGCAACCTCAGGCTGAGTAGCAGTGAATCAGGAGCGGGAGCAGTCCAATTCACCCT
GAAATTCCTCCTTGGNCACTGCCCTCTCAGCAGCAGCCTGCTCTTCTTTTCAATCTCTTCA
GGATCTCTGTAGAAGTACAGATCAGGCAATGACCTCCCATGGGTGTTACGGGAAATGGTG
CCACGCATGCGCAGAACTTCCCGAGCCAGCATCCACCACATCAAACCCACTGAGTGAGCT
CCCTTGTTGTTGCATGGGATGGGCAATGTCCACATAGCGCAGAGGAGAACTGTGTACAC
AGCGCAATGGTAGGTAGGTTAACATAAGATGCCTCCGCGAGAAGCTGGTGGTCAGCCCTG
GGGTCAAGTAACCACAAGAAGCCCGTGGCTCCCGGAAGGCTGCCTGGATCTGGTTAGTGAA
GGNTCCAGGAGTGAAGCGGGCAACAAATGGACTGGCTTCAGTGGCAAGCAGCAAACTTCA
GCACAAGCCCTCTGGACCTGCCCCGGGGCCGCTCGA

16460.1.edit

TCGAGCGGGCGCCCGGGCAGGTCCAATTTCTCCCTGACGGNCCCACTTCTCTCCAATCTTGT
AGTTACACCAATTGTCAATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCAGAGTCAATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAGTTGCCCCACGGTAACAACCTCTCCCGAACCTTATGCCTCTGCTGG
GCTTTCAGNGCCTCCACTATGATGNTGTAGGGGGGCACCTCTGGNGANGACCTCGGGCCG
GACCACGCT

16460.2.edit

AGCGTGGTCCCGGGCCGAGGTCCCTCACCAGAGGTGCCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGACGCATAAGGCTCGGGAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGTTTCCCAT
ATGCCGTTGGAGATGACTGGGAACGAATGTCTGAATCAGGCTTTAACTGTTGTGCCAGTG
CTTANGCTTTGGAAGTGGGTCAATTCAGATGTGATTCATCTAGATGOTGCCATGACAATGG
NGNGAACTACAAGATTGGAGAGAAGTGCNACCGNACGGGAGAAAATGGACCTGCCCCGG
CGGCCGCTCGA

FIG. 15BB

16461.1.edit

AGCGTGGTTCGCGGCCGAGGTCCACATCGGCAGGGTTCGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTTCATGCTCTCGCCGAACCAGACATGCCTCTTGTCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAGACTTTGATGGCATCCAGGNTGCAACCTTGGTTGGGGTCAATCCAG
TACTCTCCACTCTTCCAGCCAGAGTGGCACATCTTGAGGTACGGCAGGTGCGGNCGGGGG
NTTTGCGGGCTGCCCTCTGGNCTTCGGNTGTNCTCNATCTGCTGGCTCA

16461.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCTCGCGGTTCGCACTGGTGATGCTGGTCTGTGGTCCCC
CCGGCCCTCCTGGACCTCCTGGCCCCCTGGTCTCCAGCGCTGGTTTCGACTTCAGCTTC
CTGCCCCAGCCACCTCAAGAGAAGGCTCAGCATGGTGGCCGCTACTACCGGGCTGATGAT
GCCAATGTGGTTTCGTGACCGTGACCTCGAGGTGGACACCACCCTCAAGAGCCTGAGCCAG
CAGATCGAGAACATCCGGAGCCCAGAGGGCAGNCGCAAGAACCCCGCCCGCACCTGCCGT
GACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGATTGACCCCAACCAA
GCTGCAACCTGGATGCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGTA
CCCCACTCAGCCCAGTGTGGCCCCAAAAGAACTGGTACATCAGCAAGAACCCCAAGGACAA
GAAGCATGTCTGGTTTCGGCGAGAACATGACCGATGGATTCCAGTTCGAGTATGGCGGGCA
GGGCTCCGACCCTGCCGATGGGGACCTTGGCCCGCAACACGCT

16463.1.edit

AGCGTGGNNGCGGCCGAGGTATAAATATCCAGNCCATATCCTCCCTCCACACGCTGANAG
ATGAAGCTGTNCAAAGATCTCAGGGTGGANAAAACCAT

16463.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCTTCAGACTTGGACTGTGTACACTGCCAGGCTTCCAG
GGCTCCAACCTGCAGACGGCCTCTTGTGGGACAGTCTCTGTAATCGCGAAAGCAACCATG
GAAGACCTGGGGGAAAACACCAATGGTTTATCCACCCTGAGATCTTTGAACAACCTTCATCT
CTCAGCGTGGCGAGGGAGGCTCTGGACTGGATATTTCTACCTCGGCCGCGACCACGCT

16
17

FIG. 15CC

16464.1.edit

CGAGCGGGCGACCGGGCAGGTNCAGACTCCAATCCANANAACCATCAAGCCAGATGTCAG
AAGCTACACCATCACAGGTTTACAACCGGCACTGACTACAAGANCTACCTGCACACCTTG
AATGACAATGCTCGGAGCTCCCCTGTGCTCATCGACGCCTCCACTGCCATTGATGCACCAT
CCAACCTGCGTTTCCTGGCCACCACACCCAAATTCCTTGCTGGTATCATGGCAGCCGCCACG
TGCCAGGATTACCGGTACATCATCNAGTATGANAAGCCTGGGCCTCCTCCCAGAGAAGNG
GTCCCTCGGCCCCCGCCCTGNTGTCCCANAGGNTACTATTACTGNGCCNGCAACCGGCAACC
GATATCNATTTTGNCAATTGGCCTTCAACAATAATTA

16464.2.edit

AGCGTGGTTTCGCGGGCCGANGTCTGTGTCAGAGTGGCACTGGTAGAAGTTCCAGGAACCCCTG
AACTGTAAGGGTTCTTCATCAGNGCCAACAGGATGACATGAAATGATGTACTCAGAAAGTG
TCCTGGAATGGGGCCCATGAGATGGTGTGCTGAGAGAGAGCTTCTTGNCTGTCTTTTTCC
TTCCAATCAGGGGCTCGCTCTTCTGATTATTGTCAGGGCAATGACATAAAATGTATATTCC
GGTCCCGGNTCCAGGCCAGTAATAGTANCTCTGTGACACCAGGGCGGNGCCGAGGGGACC
ACTTCTCTGGGAGGAGACCCAGGCTTCTCATCTTGATGATGTAACCGGTAATCCTGGCAC
GTGGCGGCTGCCATGATACCAGCAAGGAATTGGGGTGTGGTGCCAGGAAACGCAGGTTG
GATGGNGCATCAATGGCAGTGGAGGCCGTCGATGACCACAGGGGGAGCTCCGACATTGTC
ATTCAAGGTG

16465.1.edit

AGCGTGGNCGCGGGCCGAGGTGCAGCGCGCCCTGTGCCACCTTCTGCTCTCTGCCCCAAGCAT
AAGGAGGGTNCCTGCCCCCAGGAGAACATTAACNTCCCCAGCTCGGCCTCTGCCGG

16465.2.edit

TCGAGCGGCCCGCCCGGGCAGGTTTTTGGTGAAGTGGNTACTTTATTGGNTGGGAAAG
GGAGAAGCTGTGGTCAGCCCAAGACCGAATACAGAGNCCCGAAAGGGGAGGGCAGGT
GGGCTGGAACACAGCCAGCGCCAGGCAGAAACTTTCTCTCTCACTGCTCAGCCTGGTG
GTGGCTGGAGCTCANAAATGGGAGTGACACAGGACACCTTCCCACAGCCAATTGCGCGG
CATTTCTCTGCCCAGGACACTGGCTGTCCACCTGGCACTGGTCCCGACAGAAAGCCCGAGC
TGGGGAAGTTAATGTTACCTGGGGCAGGAACCTCCTTATCATTTGNGCAGAGAGCAG
AAGGTGGCACAGCCCGCGCTGCACCTCGGCGCGGACACGCT

16466.2.edit

TCGAGCGGCCCGCCCGGGCAGGTCCACCATAAGTCTGTATACAACCACGGATGAGCTGTCA
GGAGCAAGGTTGATTTCTTTCAATGGTCCGNCCTTCTCTTGGGGNCACCCGCACTCGAT
ATCCAGTGAGCTGAACAATGGGTGGCGTCACTGGGCGCTCAGGCT

16467.2.edit

TCGAGCGGTTTCGCCCCGGCAGGTCCACCACACCCAAATTCCTTGCTGGTATCATGGCAGCCG
CCACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCTCTCCAGAG
AAGCGGTCCCTCGGCCCCCGCCCTGGTGTACAGAGGCTACTATTACTGGCCTGGAACCGGG
AACCAGAAATACAAATTTATGTCAATGNCCTGAAGATAATCANNAANAGCGANCCCCCTGA
TTGGAAGGA

FIG. 15DD

06_16471.edit

AGCGTGGTCGCGGCCGAGGTCTGCTGCTTCAGCGAAGGGTTTCTGGCATAACCAATGATA
AGGCTGCCAAAGACTGTTCCAATACCAGCACCAGAACCAGCCACTCCTACTGTTGCAGCAC
CTGCACCAATAAAATTTGGCAGCAGTATCAATGTCTCTGCTGATTGCACTGGTCTGAAACTC
CCTTTGGATTAGCTGAGACACACCATTTCTGGGCCCTGATTTTCTAAGATAGAACTCCAAC
TCTTTGCCCTCTAGCACATAGCCATCTGCTCGGTACACTGTCCCGGCTTGAAGCGATGC
ACGCAAGAAGCTTCCCCTGCTGGAAGTCTCTCCAGGAGACTGCTGATTTTGGCATTCTT
TTTCTTTTCATCATATTTCTTCTGAATTTTTTAGATCGTTTTTTGTTTTAAATCTCTTCTCC
TCAGGAGTCAGCTTGGCCCCCGCCGCATCCACACAGTCCGTGTGCGGGGAGGTAACAAGA
AATACCGTGCCCTGAGGTTGGACGTGGGGAATTTCTCTGGGGCTCAGAGTGGTGTACTCG
TAAAACAAGGATCATCGATGGTGNCTACAATGCATCTAATAACGAGCTGGGTGGACCCA
AAGAACCTGGNGAANAATAATGGATCGNCTCATCGACAGGACACCGTACCCGACAGGGGNA
CGANTCCCACTATGCGCTTGGCCCTGGGCGCGCAANAAGGAAAAGTGGCGGGCGGCCNT
CGAAAGCCCAATTNTGGAAAAATCCATCACACTGGGNGGCCNGTCGAGCATGCATNTAN
AGGGGCCCATTTCCCCCTNANN

07_16472.edit

TCGAGCGGCCCGCCCCGGGCAGGTCCCCAAGGCTGCAACCTGGATGCCATCAAAGTCT
TCTGCAACATGGAGACTGGTGAGACCTGCGTGTACCCCACTCAGCCCAGTGTGGCCGAGA
AGAAGTGGTACATCAGCAAGAACCCCAAGGACAAAGAGGCATGTCTGGTTGGCGAGAGCA
TGACCGATGGATTCCAGTTCGAGTATCGCGGCCAGGGCTCCGACCCTGCCGATGTGGACCT
CGGCCGCGACACGCT

08_16472.edit

AGCGTGGTCGCGGCCGAGGTCCACATCGGCAGGGTGGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCAATGCTCTCGCCCAACCAGACATGCCTCTTGTCTTGGGGTTCTTGG
TGATGTACCACTTCTTCTGGGCCACACTGGGCTGAGTGGCGTACACCGAGGTCTCACCAGT
CTCCATGTTTCAGAAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGACCTGCCCC
GGCGGCCGCTCGA

09_16473.edit

TCGAGCGGCCCGCCCCGGGCAGGTCCACACACCCAATTCTTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCTCCAGAGA
AGTGGTCCCTCGCCCCCGCCCTGGTGTACACAGGGCTACTATTACTGGCCTGGAACCGGGA
ACCGAATATACAAATTTATGTCATTCGCTGAAAGATAATCAGAAGAGCGAGCCCCCTGATTG
GAAGGAAAAAGACAGACGAGCTTCCCCAAGTGGTAACCCCTTCCACACCCCAATCTTCATG
GACAGAGATCTTGGATGTTCTTCCACAGTTCAAAAAGACCCCTTTCGTACCCACCCCTGG
GTATGACACTGGAATGGTATTCAGCTTCTGGCACTTCTGGTCAGCAACCCAGTGTGGG
CAACAAATGATCTTTGAGGAACATGGNTTTAGGCGGACCACACCGCCCAACCGGCCACC
CCCATAAGGCATAGGCCAAGACCATACCCCGCCGAATGTAGGACAAGAAGCTNTNTNCAN
ACACCATNTNATGGCCCCCAATCCAGGACACTTCTGAGTACATCAATTTATGNCATCTGTGG
CACTTGATGAAAACCCCTACAGTTCAAGGCTTCTGCAACTTTTACCAGGCCTNTTACAGGAC
TNGGCCGGACNCCTTAAGCCNATTCACCCTGGGGCGTTCTANGGTCCCACTCGNNCACTG
GNGAAAAATGGCTACTGTN

FIG. 15FF

11_16474.edit

AGCGTGGTCGCGGCCGAGGTCCACTAGAGGTCTGTGTGCCATTGCCAGGCAGAGTCTCTG
CGTTACAACTCCTAGGAGGGCTTGCTGTGCGGAGGGCCTGCTATGGTGTGCTGCGGTTCA
TCATGGAGAGTGGGGCCAAAGGCTGCGAGGTTGTGGTGTCTGNGAACTCCNAGGACANG
AGGGCTAAATTCCATGAAGTTTGTGGATGGCCTGATGATCCACAATCGGAGACCTGTAA
CTACTACCGTCTNACCNCCTGCTGTNCNCCCCNTTCTGCTNAANACATNGGGNTNNTNC
TTGNCCNTCCTTGGGTNGAANATNNAATNGCCTNCCNTTCTNCTACTNGNTCCANA
NTTGGCCTTTAAANAATCCNCCTTGCCCTNNNCATGTTCCANNNTTTNNTCGTAAACCT
ATNANTNNATTANATNNTNNNNNNCTCACCCCCCTCCTCATTNANCCNATANGCTNNNA
ANTCCTTNANNCCTCCCNCCTNCTNCTNCTNCTNCTNCTNCTNCTNCTNCTNCTNCTNCT
CTTTCTTTAANATAATGNNGCCNNGCTCTNCAINTCTACNATNTGNNNAATNCCCCNCC
CCNANCGNNTTTTGACCTNNNAACCTCCTTTCTCTTCCCTNCCNAAATNCCNANTTCC
NCNTCCNNTTTTCGGNTNNTCCCATNCTTTCCANNCTTCANTCTANNCNCTNCAAT
TATTTCTCTNTCATCCCTTNTTCTTACANNCCCCCTNNTCTACTCNCNNTTNCATTANAT
TTGAAACTNCCACNCTANTTNCCTCCTCTACNNTTTATTTTNCGNTCCTCTACNTAAT
ANTTTAATNANTTNTCN

12_16474.edit

TCGAGCGGCGCGCGCGGCGAGGTCTGCCAAGGAGACCCCTGTTATGCTGTGGGGACTGGCTG
GGGCATGGCAGGCGGCTCTGGCTTCCACCCCTCTGTTCTGAGATGGGGGTGGTGGGCAGT
ATCTCATCTTTGGGTCCACAATGCTCAGGTGGTCAAGGCAGGGGCTTCTTAGGGCCAATCT
TACCAGTTGGGTCCCAAGGCAGTCTCAACGTAGTAAGTTAACAGGGGTCTCCGCTGTGGATC
CAACACGTGGCGCACAAAGCAGTCTCAACGTAGTAAGTTAACAGGGGTCTCCGCTGTGGATC
ATCAGGGCATCCACAACCTTCAAGGATTTAGCCCTCTGTCTCGGAGTTTCCAGACACCA
CAACCTCGCAGGCTTTGGCGGCACTCTCCATGATGAACCCGAGCACACCATACAGGGCCT
CCGCACAAGCAAGCCCTCTTAAGAAATTTGTAACCCANANACTCTGCTGGCAATGGCACAC
AAACCTCTAGTGGACCTCGGNCCTGACCC

13_16475.edit

TCGAGCGGCGCGCGCGGCGAGGTCTGGTCCAGGATAGCCTGCGAGTCCCTACTGCTACTC
CAGACTTGACATCATATGAATCATACTGGGGAGAATAGTTCTGAGGACCAGTAGGGCATG
ATTACAGATTCCAGGGGGGGCAGGAGAACCAGGGGACCCTGGTTGTCTGGAATACCAG
GGTCACCAATTTCTCCAGGAATACCAGGAGGGCCTGGATCTCCCTTGGGGCCTTGAGGTCC
TTGACCAATTAGGAGGGCGAGTAGGAGCAGTTGGAGGCTGTGGGCAAACTGCACAACATTC
TCCAAATGGAATTTCTGGGTTGGGGCAGTCTAAATCTTGATCCGTCACATAATTATGTCATCG
CAGAGAACGGATCCTGAGTCACAGACACATAATTTGGCATGGTTCTGGCTTCCAGACATCTC
TATCCGNCATAGGACTGACCAAGATGGCAACATCCTCTTCAACAAGCTTCTGTTGTGCC
A-AAAAATATAGTGGGATGAAGCAGACCGAGAAAGTANCCAGCTCCCTTTTGCACAAAGC
NTCATCATGTCTAAATATCAGACATGAGACTTCTTTGGGCAAAAAAGGAGAAAAAGAAAA
AGCAGTTCAAAGTANCCNCCATCAAGTTCCTTCTTGGCCNTTCAGCACCCGGGCCCCGTT
ATAAAACACCTNGGGCGGACCCCTT

FIG. 15GG

14_16475.edit

AGCGTGGTCCGCGGCCGAGGTGTTTTATGACGGGCGCGGTGCTGAAGGGCAGGGAACAACACT
TGATGGTGCTACTTTGAACTGCTTTTCTTTTCTCCTTTTGCACAAAGAGTCTCATGTCTGA
TATTTAGACATGATGAGCTTTGTGCAAAAGGGGAGCTGGCTACTTCTCGCTCTGCTTCATC
CCACTATTATTTTGGCACAACAGGAAGCTGTTGAAGGAGGATGTTCCCATCTTGGTCAGTC
CTATGCGGATAGAGATGTCTGGAAGCCAGAACCATGCCAAATATGTGTCTGTGACTCAGG
ATCCGTTCTCTGCGATGACATAATATGTGACGATCAAGAATTAGACTGCCCCAACCCAGAA
ATTCCATTGGAGAAATGTTGTGCAGTTTGGCCACAGCCTCCAAGTCTCTACTCGCCCTCC
TAATGGTCAAGGACCTCAAGGCCCAAGGGAGATCCAGGCCCTCCTGGTATTCTCTGGGAG
AAATGGTGACCCTGGTATTCCAGGACAACCAGGGTCCCCTGGTTCTCTGGCCCCCTGGA
ATCNGNGAATCATGCCCTACTGGTCTCAAACTATTCTCCANATGATTATATGATGTC
AAGTCTGGGATAGCNAGTANGGANGGACTCGCAGGCTATTCTGGACCANACCTGCCGGGG
GGGCGTTGAAAAGCCCCGAATCTGCANANNTNCTTCACTGGCGGCCGTCGAGCTGCTTT
AAAAGGGCCATTCCNCCTTTAGNGNGGGGGANTACAATTACTNCGCGCGCTTTANANCG
CGNGNCTGGGAAAT

15_16476.edit

AGCGTGGTCCGCGGCCGAGGTCCACATCGGCAGGGTCCGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCAATGCTCTCGCCGAACCAGACATGCCTCTTGTCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAAGACTTTGATGGCATCCAGGTTCCAGCCTTGGTTGGGGTCAATCCAG
TACTCTCCACTCTTCCAGTCAGAGTGGCACAATCTTGAAGTCAAGCCAGGTGCGCGCGGGGT
TCTTGGCGCTGCCCTCTGGGCTCCGGAATGTTCTCGATCTGCTGGCTCAGGCTCTTGAGGGTG
GTGTCCACCTCGAGGTCACGGTCACGAACCACATTGGCATCATCAGCCCGGTACTAGCGCC
CACCATCGTGAGCCTTCTCTTGANGTGGCTGGGGCAGGAAGTGAAGTCGAAACCAGCCCT
GGGAGGACCAGGGGGACCAANAGGTCCAGGAAGCGGCCCGGGGGGACCAACAGGACCAG
CATCACCAGGTCCGACCCGCGAGAACCCTGCCCGCCGNCCTCGAA

16_16476.edit

TCGAGCGNCCGCGCGGGCAGGTCTCGCGCTCGCACTGGTGATGCTGGTCTGTTGGTCCCC
CCGGCCCTCCTGGACCTCCTGGTCCCCCTGGTCTCTCCAGCGCTGGTTTCGACTTCAGCTTC
CTGCCCCACCCACCTCAAGAGAAGGCTCACGATGGTGGCCGCTACTACCGCGCTGATGAT
GCCAATGTGTTTCGTGACCGTGACCTCGAGGTGGACACCACCTCAAGAGCCTGAGCCAG
CAGATCGAGAACAATCCGAGCCCCAGAGGGCAGCCGCAAGAACCCCGCCCGCACCTGCCGT
GACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGATTGACCCCAACCA
GGCTGCAACCTGGATGCCATCAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGT
ACCCCACTCAGCCAGTGTGCCCCAGAAAGAACTGGTACATCAGCAAGAACCCCAAGGACA
AGAGGCAATGTCTGTTTCGGCGAGAGCAAGACCGATGGAATCCAGTTCGAGTATGGCGGCC
AGGGCTCCACCCCTGCCGATGTGACCTCCGCCCCCGACCAACCTT

FIG. 15HH

17_16477.edit

TNGAGCGGCCGCCCGGGCAGGNTGNNAACGCTGGTCCTGCTGGTCCTCCTGGCAAGGCTG
GTGAAGATGGTCAACCCTGGAAAACCCGGACGACCTGGTGAGAGAGGAGTTGTTGGACCAC
AGGGTGCTCGTGGTTTCCCTGGAACTCCTGGACTTCTGGCTTCAAAGGCATTAGGGGACA
CAATGGTCTGGATGGATTGAAGGGACAGCCCGGTGCTCCTGGTGTGAAGGGTGAACCTGG
TGCCCTGGTGA AAAATGGA ACTCCAGGTCAAACAGGAGCCCGTGGGCTTCTGGTGAGAG
AGGACCGTGTGGTGCCCTGGCCCANACCTCGGCCGCGACCACGCTAAGCCCGAATTTCC
AGCACACTGGNGGCCGTTACTANTGGATCCGAGCTCGGTACCAAGCTTGGCGTAATCATG
GTCATAGCTGTTTCTGNGTGAAATTGTTATCCGCTCACAATTTACACANCATACGAAGC
CGGAAAGCATAAAAGTGTAAGCCTTGGGGTGCTAATGAGTGAGCTAACTCNCATTAATTT
GCGTTGCGCTCACTGCCCCGCTTTTCCANNNGGGAAACCN TGCCNTNGCCNGCTTGCCNTTAA
NTGAAATCCGCCNACCCCCGGGGAAAAGNCGGTTTGCGTATTGGGGCNCCTTTTCCCTTT
CCTCGGNTTACTTGANTTANTGGGCTTTGNCGNTTCGGGTTGNGGCGANCNGGTTCAACN
TCACNCCAAAGNGGNAANACGGTTTTCCANAATCCGGGGGNTANCCCAANGNAAAAC
ATNNGNCNAANGGGCT

18_16477.edit

AGCGTGGTTNGCGGCCGACGTCTGGGCCAGGGGCCACCAACACGTCCTCTCTCACCAGGAA
GCCCCAGGGCTCCTGTTTGACCTGGAGTTCCATTTTACCAGGGGCACCAGGTTACCCCTT
CACACCAGGAGCACCGGGCTGTCCCTTCAATCCATNCAGACCAATTGTGNCCCCTAATGCCT
TTGAAGCCAGGAAGTCCAGGAGTTCCAGGAAACACCGAGCACCTGTGGTCCAACAAC
TCCTCTCTCACCAGGTCTCGGGGTTTTCCAGGCTGACCATCTTACCAGCCTTGCCAGGA
GGACCAGCAGGACCAGCGTTACCAACCTGCCCGGGCGGCCGCTCGA

21_16479.edit

TCGAGCGGCCGCCCGGGCAGGTCCAATTTCTCCCTGACGGTCCCACCTTCTCTCCAATCTTGT
AGTTACACCAATTGTATGGCACCATCTAGATGAATCACAATCTGAAATGACCACCTTCCAAA
GCCTAAGCACTGCCACAACAGTTTAAAGCCTGATTACAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTCTGTAGGGGTCAAAGCAGGATCATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAGTTGCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGTC
TTTCAGTGCCTCCACTATGATGTTGTAGGTGGCACCTCTGCTGAGGACCTCGGCCGCGACC
ACGCT

22_16479.edit

AGCGTGGTCCCGGCCGAGGTCTCACCAGAGGTGCCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAGGTTCCGGAAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACCGGATGACTCGTGCTTTGACCCCTACACAGTTTCCCAT
ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAGTG
CTTAGGCTTTGGAAGTGGTCATTTCAAGATGTGATTCATCTAGATGGTGCCATGACAATGG
TGTGAACTACAAGATTGGAGAGAAGTGGGACCGTCAGCGAGAAAATGGACCTGCCCGGG
CCGGCCGCTCGA

FIG. 15II

24_16480.edit

TCGAGCGNNCGCCCGGGCAGGTCCAGTAGTGCTTCGGGACTGGGTTACCCCCAGGTCTG
CGGCAGTTGTACAGCGCCAGCCCCGCTGGCTCCAAAGCATGTGCAGGAGCAAATGGCA
CCGAGATAATCCTTCTGCCACTGTTCTCTACGTGGTATGTCTTCCCATCATCGTAACACGT
TGCTCATGAGGGTCACACTTGAAATCTCTTTCCGTTCCCAAGACATGTGCAGCTCATTT
GGCTGGCTCTATAGTTTGGGGAAGTTTGTGAAACTGTGCCACTGACCTTTACTTCTCTCT
TCTCTACTGGAGCTTTCTGTACCTTCCACTTCTGTGTGGTAAAATGGTGGATCTTCTATCA
ATTCATTGACAGTACCCACTTCTCCCAAAACATCCAGGGAAATAGTGATTTTCAGAGCGATT
AGGAGAACCAAATTATGGGGCAGAAATAAGGGGCTTTTCCACAGGTTTTCCTTTGGAGGA
AGATTTTCAGTGGTGACTTTAAAAGAATACTCAACAGTGTCTTCATCCCCATAGCAAAAGAA
GAAACNGTAAATGATGGAANGCTTCTGGAGATGCCNNCATTTAAGGGACNCCCAGAACTT
CACCATCTACAGGACCTACTTCAGTTTACANNAAGNCACATANTCTGACTCANAAAGGAC
CCAAGTAGCNCCATGGNCAGCACTTTNAGCCTTTCCCTGGGGAAAANNTTACNTTCTTAA
ANCCTNGGCCNNGACCCCTTAAGNCCAAATTNTGGAAAANTTCCNTNCCNCTGGGGGGC
NGTTCNACATGCNTTTNAAGGGCCCAATTNCCCCNT

25_16481.edit

TCGAGCGGCGCCCGGGCAGGTGTCCGAGTCCAGCACGGGAGGGCTGGTCTTGTAGTTGT
TCTCCGGCTGCCCAATTGCTCTCCCACTCCACGGCGATGTGCTGGGATAGAAGCCTTTGAC
CAGGCAGGTACGGCTGACCTGGTTCTTGGTCACTCTCTCCCGGGATGGGGGCAGGGTGTAC
ACCTGTGGTTCTCGGGCTGCCCTTTGGCTTTGGAGATGGTTTCTCGATGGGGGCTGGGA
GGGCTTTGTGGAGACCTTGCACCTTGTACTCTTGGCATTACAGCCAGTCTCTGGTGCAGGAC
GGTGAGGACGCTGACCACAGGTACGTGCTGTGTACTGCTCTCTCCCGCGGCTTTGTCTTG
GCATTATGCACCTCCACGGCTCCACGTACCACTTGAACCTGACCTCAGGGTCTTGTGCTGG
TCACGTCCACCACCACCAATGTAACCTCAGACCTCGGGCGCGACCAAGCT

25_16481.edit

AGCGTGGTCCGGGCGGAGGTCTCAGCTTACATCCGTGGTGGTGGACGTGAGCCACGAAGA
CCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAA
GCGCGGGAGGAGCAGTACAACAGCACCTACCGTGTGCTCAGCGTCTCACCCTCTGCA
CCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAGGTCTCCAACAAAGCCCTCCAGC
CCCCATCGAGAAAACCATCTCCAAAGCCAAAGGGCAAGCCCCGAGAACCACAGGTGTACA
CCCTGCCCCCATCCCCGGAGGAGATGACCAAGAACCAGGTGACCTGACCTGCTGGTCA
AAGGCTTCTATCCAGCGACATCGCCGTGGAGTGGAGAGCAATGGCGAGCCCGAGACA
ACTACAAGACCACGCCTCCCGTGTCTGACTCCGACACCTGCCCCGGCGCGCGCTCGA

27_16482.edit

TCGAGCGGCGCCCGGGCAGGTGAATGGCTCTCTGCTGACCACCCCGGTGCTGGTGGTGG
GTACAGAGCTCCGATGGGTGAACCAATTGACATAGAGACTGTCCCTGTCCAGGGTGTAGG
GGCCAGCTCAGTGATCCCGTGGGTGAGCTGGCTCAGCTTCCAGTACAGCCGCTCTCTGTG
CAGTCCAGGGCTTTTGGGCTCAGGACCATGGGTGCAGACAGCATCCACTCTGGTGGCTGC
CCATCTCTCTCAGGCTGACCAAGGTGAGTGTGCAACCAGAGTACAGAGAGCTGACACT
GGTGTCTTGAACAAGGGCATAAGCAGACCTGAAGGACACCTCGGCCGCGACCAAGCT

FIG. 15JJ

23_16482.edit

AGCGTGGTCCGGCCGAGGTGTCCTTCAGGGTCTGCTTATGCCCTTGTTCAAGAACACCAG
TGTCAGCTCTCTGTACTCTGGTTGCAGACTGACCTTGCTCAGGCCTGAGAAGGATGGGGCA
GCCACCAGAGTGGATGCTGTCTGCACCCATCGTCTGACCCCAAAAGCCCTGGACTGGACA
GAGAGCGGCTGTACTGGAAGCTGAGCCAGCTGACCCACGGCATCACTGAGCTGGGCCCT
ACACCTGGACAGGGACAGTCTCTATGTCAATGGTTTACCCATCGGAGCTCTGTACCCAC
CAACAGCACCGGGGTGGTCAGCGAGGAGCCATTCAACCTGCCCGGGCGGCCGCTCGA

29_16483.edit

AGCGTGGTCCGGCCGAGGTGTCAGAGTGGCACTGGTAGAAGTTCCAGGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTC
CTGGAATGGGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGCTCTACATTGGCGGG
TATGGTCTTGGCCTATGCCCTTATGGGGGTGECGTTGTGGGCGGTGTGGTCCGCCTAAAAC
CATGTTCTCAAAGATCATTGTGCCCAACACTGGGTTGCTGACCAGAAAGTGGCAGGAAG
CTGAATACCATTTCCAGTGTCAATCCAGGGTGGGTGACGAAAGGGGTCTTTTGAAGTGTG
GAAGGAACATCCAAGATCTCTGGTCCATGAAGATTGGGGTGTGGAAGGGTTACCAAGTTGG
GGAAGCTCGTCTGTCTTTTTCTTCCAAATCAGGGGCTCGCTCTTCTGATTATTCTTCAGGGC
AATGACATAAAATTGTATAATCCGGTCCCGTTCCAGGCCAGTAATAGTAGCCTCTGTGACAC
CAGGGCGGGGGCCGAGGGACCCCTCTNTTGAAGAGACCAGCTTCTCATACTTGATGATGA
GNCCGGTAATCCTGGCACGTGGNGGTTCATGATNCCACCAAGGAAATNGGNGGGGGNG
GACCTGCCCCGGGGCCGTTTCAAAGCCCAATTCACACACTTGGNGGCCGTACTATGGATC
CCACTCNGTCCAACCTTGGNGGAATATGGCATAACTTTT

31_16484.edit

TCGAGCGGGCCGCCCCGAGGTGCTTTCAGCAAGTGGGAAGGTGTAATCCGTCT
CCACAGACAAGGCCAGGACTCGTTTGTATCCGTTGATGATAGAATGGGGTACTGATGCAA
CAGTTGGGTAGCCAAATCTGCAGACACACTGCCAAACATTGGCGACACCCCTCCAGGAAGC
GAGAATGCAGAGTTTCTCTGTGATATCAACCACTTCAGGGTTGTAGATGCTGCCATTGTC
GAACACCTGCTGGATGACCAGCCCAAGGAGAAAGGGGAGATGTTGAGCATGTTACGACAG
CGTGGCTTCGCTGCTCCCACTTTGTCTCCAGTCTTGATCAGACCTCGGCCCGACACCGCT

37_16487.edit

AGCGTGGTCCGGCCGAGGTCTGTCTTACAGTCTCAGGACTCTACTCCCTCAGCAGCGTG
GTGACCGTGCCCTCCAGCAACTTCCGCACCCAGACCTACACCTGCAACGTAGATCACAAGC
CCAGCAACACCAAGGTGGACAAGAGAGTTGAGCCCAAAATCTTGTGACAAAACCTCACACAT
GCCCACCGTGCCAGCACCTGAACCTCTGGGGGGACCGTCAGTCTTCTCTTCCCCCGCAT
CCCCCTTCAAACCTGCCCGGGGGGGCGCTCG

FIG. 15KK

38_16487.edit

CGAGCGGCCCGCCCGGGCAGGTTTGGAAAGGGGGATGCGGGGGAAGAGGAAGACTGACGGT
CCCCCAGGAATTTCAGGTGCTGGGCACGGTGGGCATGTGTGAGTTTGTACAAGATTGG
GCTCAACTCTCTTGTCCACCTTGGTGTGCTGGGCTTGTGATCTACGTTGCAGGTGTAGGTC
TGGGTGCCGAAGTTGCTGGAGGGCACGGTCACCACGCTGCTGAGGGAGTAGAGTCCTGAG
GACTGTAGGACAGACCTCGGCCGCGACCACGCT

39_16488.edit

NGGNNGGTCCGGNCNGNCAGGACCCTCCTTCGAAATA

41_16489.edit

AGCGTGGTCGCGGCCGAGGTCCTCACTTGCCCTCCTGCAAAGCACCGATAGCTGCGCTCTGG
AAGCGCAGATCTGTTTTAAAGTCCTGAGCAATTTCTCGCACCGAGCTGGAAGGGGAAGTT
TGCGAATCAGAAGTTTCAGTGGACTTCTGATAACGTCTAATTCACGGAGCGCCACAGTACC
AGGACCTGCCCCGGCGGGCCGCTCGA

42_16489.edit

TCGACCGCGCCCGCCCGGGCAGGTCCTCGTACTGNGCCGCTCCGTGAAATTAGACGTTATCA
GAAGTCCACTGAACCTTCTGATTCCGCAAACCTTCCCTTCCAGCGTCTGGTGCGAGAAATTGCT
CAGGACTTTAAACAGATCTGCGCTTCCAGAGCGCAGCTATCGGTGCTTTGCAGGAGGCA
AGTCAGGACCTCGGCCGCGACCACGCT

45_16491.edit

TCGACCGCGCCCGCCCGGGCAGGTCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTCACTCTCTCGCCGAACAGACATGCCTCTTGTCTTGGGGTTCT
TGCTGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
AGTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTCACGGCAGGTGCGGGCGG
GGTTCTTGACCTCGGCCGCGACCACGCT

FIG. 15LL

46_16491.edit

GTGGGNTTGAACCCNTTTNANCTCCGCTTGGTACCGAGCTCGGATCCACTAGTAACGGCCG
CCAGTGTGCTGGAAATTCGGCTTAGCGTGGTCCGGGCCGAGGTCAAGAACCCCGCCCGCAC
CTGCCGTGACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGATTGACCC
CAACCAAGGCTGCAACCTCGATGCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGAC
CTGCGTGTACCCACTCAGCCCAGTGTGGCCGAGAAGAACTGGTACATCAGCAAGAACCC
CAAGGACAAGAGGCATGTCTGGTTCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTA
TGGCGGCCAGGGCTCCGACCCTGCCGATGTGGACCTGCCCGGGCGGCCGCTCGA

47_16492.edit

AGCGTGGTCCGGGCCGAGGTCTGGGATGCTCCTGCTGTACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAATAGCCCTGTCCAGGAGTTCAGTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAATTTCCATTAAATTACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTCAAGGACAACAGCATTAGTGTCA
AGTGGCTGCCTTCAAGTTCCTCTGTTACTGGTTACAGAGTAACCACCACTCCCAAAAATGG
ACCAGGACCAACAAAACTAAAAGTGCAGGTCCAGATCAAAACAGAAATGACTATTGAAG
GCTTGCAGCCACAGTGGAGTATGTGGTTAAGTGTCTATGCTCAGAATCCAAGCGGAGAG
AAGTCAGCCTCTGGTTTCACTGNAAGTAACCAACATTGATCGCCTAAAGGACTGGCATT
ACTGATGNGGATGCCGATTCATCAAAAATTGNTTGGGAAAACCCACAGGGGCAAGTTTNC
ANGTCNAGNGGACCTACTCGAGCCCTGAGGATGGAATCCTTGACTNTTCTTNNCCTGAT
GGGGAAAAAAAACCTTNAAAAATTGAAGGACCTGCCCGGGCGGCCGTNCAAAAACCAATT
CCACCCCTTGGGGCGCTTCTATGGGNCCTACTCGGACCAAACTTGGGGTAAN

48_16492.edit

TCGAGCGGCCGCGCCGCGGCAAGTCTTGCAGCTCTCCAGTGTCTTCTTCAACCATCAGGTGCA
GGGAATAGCTCATGGATTCCAATCTCAGGGCTCGAGTAGGTCAACCTGTACCTGGAAACTT
GCCCCGTGCGGCTTTCCCAAGCAATTTGATGGAATCGGCATCCACATCAGTGAATGCCAG
TCCTTTAGGGCGATCAATGTTGCTTACTGCACTCTGAACCAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAGACACTAACCACATACTCCACTGTGGCCTGCAAGCCTTCAATAGTCA
TTTCTGTTTGATCTGGACCTGCCAGTTTACTTTTGTGTTGGTCCCTGGTCCATTTTGGGAGTG
GTGGTTACTCTGTAACCAAGTAACAGGCCAACTTGAAGGCAGGCACTTGACACTAATGCTGT
TGTCTGAACATCGGTCACTTGCATCTGGCATGGTTTGTCAAATTCGTGTTGGTAATTAATG
GAAATTGGCTTGCTGCTTGGCGGCTTGTCTCCACCGCCAGTGACAGCATACACAGTGATG
GTATAATCAACTCCAGGTTTAAAGCCGCTGATGGTAGCTGAAACTTTGCTCCAGGCCACAAGT
GAACTCCTGACAGGGCTATTTCCCTNCTGTTCTCCGTAAGTGAATCTGTAATATCTCACTGGG
ACAGGAGGANGCAATTCAAAACCTTCCGGCGNGACCCCTAAGCCGAATTNTGCAATATNC
ATCACTACTGGCGCGCTCGANCAATCAATAAAAGGCCCAATNCCCCTATAGGGAGTNT
ANTACAATTNG

FIG. 15MM

49_16493.edit

TCGAGCGGGCCCGGGGAGGTCACTTTTGGTTTTTGGTCATGTTCCGGTTGGTCAAAGATA
AAAACTAAGTTTGAGAGATGAATGCAAAGGAAAAAATATTTCCAAAGTCCATGTGAAA
TTGTCTCCCATTTTTTGGCTTTTGAGGGGGTTCAGTTTGGGTGCTTGTCTGTTTCCGGGTT
GGGGGAAAGTTGGTTGGGTGGGAGGGAGCCAGGTTGGGATGGAGGGAGTTTACAGGAA
GCAGACAGGGCCAACGTCC

55_16496.edit

AGCGTGGTCCGGCCGAGGTCTCACCAGAGGTGCCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAGGTTTCGGGAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGTTTCCCATT
ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAACTGTTGTGCCAGTG
CTTAGGCTTTGGAAGTGGTCATTTAGATGTGATTCATCTAGATGGTGCCATGACAATGGT
GTGAACCTACAAGATTGGAGAGAAGTGGGACCGTCAGGGAGAAAATGGACCTGCCCGGGC
GGCCGCTCGA

56_16496.edit

TCGAGCGGGCCCGGGGAGGTCCAATTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACCAATTTGTCATGGCACCACTCTAGATGAATCACAATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAAACAGTTTAAACCCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTACGGGTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAGTTGGCCACCGTAACAACCTCTTCCCGAACCTTATCCCTCTGCTGGTC
TTTCAGTGCCTCCACTATGATGTTGTAGCTGGCACCTCTGGTGAGGACCTCGGCCGCGACC
ACGCT

59_16498.edit

TCGAGCGGGCCCGGGGAGGTCCACCATAAGTCTCTGATACAACCACGGATGAGCTGTCA
GGAGCAAGGTTGATTTCTTTCAATGGTCCGGTCTTCTCCTTGGGGGTCACCCGCACTCGATA
TCCAGTGAGCTGAACATTCGCTGGTGTCCACTGGGCGCTCAGGCTTGTGGGTGTGACCTGA
GTGAACTTCAGGTCAAGTTGGTGCAGGAATAGTGGTACTGCAGTCTGAACCAGAGGCTGA
CTCTCTCCGCTTGGATTCTGAGCATAGACACTAACACATACTCCACTGTGGGCTGCAAGC
CTTCAATAGTCATTTCTGTTTGAATCTGGACCTGCAGTTTATGTTTTGTTGGTCTGCTCCAT
TTTTGGGAGTGGTGGTACTCTGTAAACAGTAACAGGGGAACCTGAAGGCAGCCACTTGAC
ACTAATGCTGTTGTCTGAACATCGGTCACCTGCACTGGGATGGTTGNCAATTTCTGTTT
GGTAATTAATCGAAATTTGGCTTCTGCTTGGGGGCTGTCTCCACGGCCAGTGACAGCATA
CACAGNGATGCNATNATCAACTCCAAGTTTAAAGGCCCTGATGGTAACCTTTAACTTGCTCC
CAGCCAGNGAACCTCCGGACAGGCTATTTCTTCTGGTTTTCCGAAAGNGANCCTGGAATNN
TCTCCTTGGANCAGAAGGANCNTCCAAAACCTTGGCCCGGAACCCCTT

FIG. 15.NV

60_16473.edit

AGCGTGGTCCGGCCGAGGTCCTGTCAGAGTGGCACTGGT.AGAAGTTCCAGGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTC
CTGGAATGGGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGTCCTACATTCCGGCGGG
TATGGTCTTGGCCTATGCCTTATGGGGCTGGGGCTTGTGGGCGGTGTGGTCCGCCTAAAC
CATGTTCTCTCAAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCAGAAAGGGGTCTTTTGA
CTGAATACCATTTCCAGTGTCTATCCCAGGGTGGGTGACGAAAGGGGTCTTTTGA
CTGTGAAGAACATCCAAGATCTCTGGTCCATGAAGATTGGGGTGTGGAAGGGTTACCAGTTGG
GGAAGCTCGTCTGTCTTTTCTTCCAATCAGGGGCTCGCTCTTCTGATTATTCTTCAGGGC
AATGACATAAATTGTATATTCGGTTCCCGGTTCCAGGCCAGTAATAGTAGCCTCTTGTGAC
ACCAGGGCGGGGCCANGGACCACTTCTCTGGGANGAGACCCAGCTTCTCATACTTGTATGAT
GTAACCCGGTAATCCTGCACGTGGCGGCTGNCATGATACCANCAAGGAATTGGGTGNGGN
GGACCTGCCCCGGCGGCCCTCNA

60_16498.edit

AGCGTGGTCCGGCCGAGGTCCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAATTTCCATTAAATTACCGAACAG
AAATTGACAAACCATCCAGATGCAAGTGACCGATGTTCAAGGACAACAGCAATTAGTGTC
AGTGGCTGCCTTCAAGTTCCCTGTACTGGTTACAGAGTAACCACTCCCAAAAAATGG
ACCAGGACCAACAAAACTAAAACTGCAGGTCCAGATCAAAACAGAAATGACTATTGAAG
GCTTGCAGCCACAGTGGAGTATGTGCTTAGTGTCTATGCTCAGAATCCAAGCGGAGAGA
GTCAGCCTCTGCTTCAGACTCCAGTAACCACTATTCCTGCACCAACTGACCTGAAGTTCAC
TCAGGTACACCCACAAAGCTTGACCCGSCAGTGGACACCCACCAATGTTCACTCACTGGAT
ATCGAGTGGGGTGACCCCAAGGAGAAAGACCCGACCCATGAAAGAAATCAACCTTGCT
CCTGACAGCTCATCCGCGGCTGTATCAGGACTTATGGGGGACTGCCCCGGCGGCGNTC
GAAANCGAATTNTGAAATTTCTTTCNCACTGGGNGGCGNTTCGAGCTTNTNTANANGGC
CCAATTNCCTNTAENGGGTCTN

61_16499.edit

AGCGTGGTCCGGCCGAGGTCNAGGA

62_16483.edit

TCGACCGGCGCGCCGCGGACGGTCCACCACACCCAAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCAGAGA
AGTGGTCCCTCGCCCCCGCCCTCGGTGTCACAGAGGCTACTATTACTGGCCTGGAACCGGGA
ACCGAATATACAATTTATGTCATTGCCCTGAAGAATAATCAGAAGAGCGAGCCCTGATTG
GAAGGAAAAAGACAGACGAGCTTCCCAACTGCTAACCTTCCACACCCCAATCTTCATG
GACCAGAGATCTTGGATGTTCTTCCACAGTTCAAAAGACCCCTTTCGTCACCCACCTGG
GTATGACACTGCAATGGTATTCAGCTTCTTGGCACTTCTGGTCAGCAACCCAGTGTGGG
CAACAAATGATCTTTGAGGAACATGGTTTLAGGGCGGACCACACCGCCCAACACCGGCGCC
CCCATAAAGGNATAGGGCAAGACCATACCCCGCCGAATGTAGGACAAGAAGCTCTNTCTCA
ACAACCATCTCATGGGCCCCATTCCAGGACACTTCTGAGTACATCATTTATGTCTATCCTG
GTGGGCACTTGATGAANAACCCCTACAGTTCAAGGTTCTCTGGAACCTTCTACCAGNGCCACT
TCTGACAGGANCTTGGGCGNGACCACTT

FIG. 1500

63_16500.edit

AGCGTGGTCCGGCCGAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGTAG
TTCACACCAATGTCATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAAGC
CTAAGCACTGGCACAACAGTTTAAAGCCTGATTGAGACATTCGTTCCCACTCATCTCCAAC
GGCATAATGGGAAACTGTGTAGGGGTCAAAGCAGAGTCATCCGTAGGTTGGTTCAAGCC
TTCGTTGACAGAGTTGCCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGTCTT
TCAGTGCCTCCACTATGATGTTGTAGGTGGCACCTCTGGTGAGGACCTGCCCCGGCGGCC
GCTCGA

64_16493.edit

AGCGTGGTCCGGCCGAGGTGTGCCCCAGACCAGGAATTCGGCTTCGACGTTGGCCCTGTC
TGCTTCCTGTAAACTCCCTCCATCCCAACCTGGCTCCCTCCACCCAAACCAACTTTCCCCC
AACCCGGAACAGACAAGCAACCCAAACTGAACCCCTCAAAAGCCAAAAAATGGGAG
ACAATTTACATGGACTTTGGAAAAATTTTTTCTTTGCAATCATCTCTCAAACCTTAGTT
TTTATCTTTGACCAACCGAACATGACCAAAAAACCAAAAGTGACCTGCCCCGGCGGCCGCTC
GA

64_16500.edit

TCGAGCGGCGCGCGCGGAGGTCTCACCAGAGGTGCCACCTACAACATCATAGTGGAGG
CACTGAAAGACCAGCAGAGGCATAAGGTTGGGAAGAGGTTGTTACCGTGGGCAACTCTG
TCAACGAAGGCTTGAACCAACCTACCGATGACTCGTGCTTTGACCCCTACACAGTTTCCCA
TTATGCCGTTGGAGATGAGTGGCAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAG
TGCTTAGGCTTTGGAAGTGGTCATTTGAGATGTGATTCATCTAGATGGTGCCATGACAATG
GTGTGAACCTACAAGATTGGAGAGAGTGGGACCGTCAGGGAGAAAATGGACCTCGGCCG
CGACCACCT

FIG. 15PP

16501.edit

TCGAGCGGCGCGCGCGGCGCAGGTACCGGGGTGGTCAGCGAGGAGCCATTCACTGAACTT
CACCATCAACAACTGCGGTATGAGGAGAACATGCAGCACCCCTGGCTCCAGGAAGTTCAA
CACCACGGAGAGGGTCCTTCAGGGCCTGCTCAGGTCCCTGTTCAAGAGCACCACTGTTGGC
CCTCTGTACTCTGGCTGCAGACTGACTTTGCTCAGACCTGAGAAACATGGGGCAGCCACTG
GAGTGGACGCCATCTGCACCCTCCGCCCTTGATCCCACTGGTCTGGAAGTGGACANANAGCG
GCTATACTTGGGAGCTGANCCNAACCTTTGGCGGNGACNCCNCTT

16501.2.edit

GAGGACTGGCTCAGCTCCCAGTATAGCCGCTCTCTGTCCAGTCCAGGACCAGTGGGATCAA
GGCGGAGGGTGCAGATGGCGTCCACTCCAGTGGCTGCCCATGTTTCTCAAGTCTGAGCAA
AGNCAGTCTGCAGCCAGAGTACAGAGGGGCCAACACTGGTGTCTTGAACAGGGACCTGAG
CAGGCCCTGAAGGACCCTCTCCGTGGTGTGAACTTCTGGAGCCAGGGTGTGCATGTTT
TCCTCATACCCGAGGTTGTTGATGGTGAAGTTCACTGTGAATGGCTCCTCGCTGACCACCC

16502.1.edit

AGCGTGGTCCGCGCGCGAGGTCCACCACACCCCAATTCCTTGCTGGTATCATGGCAGCCGCCA
CGTGCCAGGATTACCGGGTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGAA
GTGGTCCCTCGGCCCCCGCCCTGGTGTACAGAGGCTACTATTACTGGCCTGGAACCGGGAA
CCGAATATACAAATTTATGTCAATGCCCTGAAGAATAATCAGAAGAGCGAGCCCTGATTGG
AAGGAAAAAGACACAGGAGCTTCCCCAACTGGTAACCCTTCCACACCCCAATCTTCATGG
ACCANANANCTTGGATNGTCTTTCACNGGTTNAAAAAACCTTTTGGCCCCCCCCACCTTG
GGGATTAACCTTGGGAAANGCGGGAATTNACCNCTTCC

16502.2.edit

TCGAGCGGCGCGCGCGGCGCAGGTCTGTGACAGTGGCACTGGTAGAAGTTCAGGAACCCCT
GAACTGTAAGGGTTCTTCATCACTGCCAACAGGATGACATGAAATGATGTACTCAGAAGT
GTCCTGGAATGGGCCCCATGAGATGGTGTGTGAGAGAGAGCTTCTTGTCTACATTGGC
GGGTATGGTCTTGGCCTATGCCCTATGGGGGTGGCCGTTGTGGGCGGTGTGGTCCGCCTAA
AACCATGTTCTCAAAGATCAATTTGTTGCCCAACACTGGGTGCTGACCAGAAGTGCCAGG
AAGCTGAATACCATTTCCAGTGTGATACCCAGGGNGGGTGACCAAAGGGGGTCTNTTNGA
CCTGGNGAAAGGAACCATCCAAAACTCTGNCCCATG

FIG. 1500

16503.1.edit

AGCGTGGNCGCGGCCGAGGTCTGAGGATGTAACTCTTCCCAGGGGAAGGCTGAAGTGCT
GACCATGGTGCTACTGGGTCTTCTGAGTCAGATATGTGACTGATGNGAACTGAAGTAGGT
ACTGTAGATGGTGAAGTCTGGGTGTCCCTAAATGCTGCATCTCCAGAGCCTTCCATCATT
CCGTTTCTTCTTTTGTCTATGGGATGAGACACTGTTGAGTATTCTCTAAAGTCACCACTGAAA
TCTTCTCCAAAGGAAAACCTGTGGAAGGCCCTTATTTCTGCCCCATAATTTGGTTCTCC
TAATCCTCTGAAATCACTATTTCCCTGGAANGTTTGGGAAAAANNGGGCNACCTGNAN
TGGAAANTGGATANAAAGATCCCACCATTTTACCCAAACNAGCAGAAAGTGGAANGGTAC
CGAAAAGCTCCAAGTAANAAAAAGGAGGGAAGTAAAGGTCAAGTGGGCACCACTTTCAA
ACAAAACCTTCCCCAACTATANAACCCA

16503.2.edit

AAGCGGCCGCCCCGGGCAGGNACAGNAGTGCCCTCGGGACTGGGNTCACCCCCAGGTCTGC
GGCAGTTGTCACAGCGCCAGCCCCGCTGGCCTCCAAAGCATGTGCAGGAGCAAAATGGCAC
CGAGATATTCCTTCTGCCACTGTTCTCCTACGTGGTATGTCTTCCCATCATCGTAACACGTT
GCCTCATGAGGGTCACACTTGAATTCCTTTTCCGTTCCCAAGACATGTGCAGCTCATTG
GCTGGCTCTATAGTTTGGGGAAGTTTGTGAACTGTGCCACTGACCTTTACTTCTCCTT
CTTACTGGAGCTTTCCGTACCTTCCACTTCTGCTGNTGGNAAAAAGGGNNGGAACNTCTTA
TCAATTTCAATTGGACAGTANCCCNCTTTCTNCCCAAAACATNCAAGGGAAAAATATTGATTN
CNAGAGCGGATTAAAGGAACAACCCNAATTATGGGGGCCAGAAATAAAGGGGGCTTTTCCA
CAGGTNTTTCT

16504.1.edit

TCGACCGCGCCCGCGGCCAGGTCTGCAGGCTATTGTAAAGTGTCTGAGCACATATGAGAT
AACCTGGGCCAAAGCTATGATGTTCCATACGTTAGGTGTATTAAATGCACCTTTGACTGCCA
TCTCAGTGGATGACAGCCTTCTCACTGACAGCAGAGATCTTCTCACTGTGCCAGTGGGCA
GGAGAAAGAGCATGCTCGGACTCGACCTCGGCCCGGACCACGCT

16504.2.edit

AGCGTGGTGGCGGCCGAGGTCCAGTCCACCATGCTCTTTCTCCTGCCCACTGGCACAGTG
AGGAAGATCTCTGCTGTCACTGAGAAAGGCTGTCACTCACTGAGATGGCAGTCAAAAGTGC
ATTTAATACACCTAACGTATCGAACAATCACTTGGCCCCAGGTTATCTCATATGTGCTCA
GAACACTTACAATAGCCTCCAGACCTGCCCCGGCGGCCGCTCGA

FIG. 15RR

16505.1.edit

CGAGCGGCGCGCGGCGAGGTCCAGACTCCAATCCAGAGAACCACCAAGCCAGATGTCAG
AAGCTACACCATCACAGGTTTACAACCAGGCACTGACTACAAGATCTACCTGTACACCTTG
AATGACAAATGCTCGGAGCTCCCCTGTGGTCATCGACGCTCCACTGCCATTGATGCACCAT
CCAACCTGCGTTTCTGCGCCACCACACCCAAATTCCTTGCTGGTATCATGGCAGCCGCCACG
TGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGAAGT
GGTCCCTCGGCCCCCGCCCTGGTGNCACAGAAGCTACTATTACTGGCCTGGAACCGGGAACC
GAATATACAATTTATGTCAATTGCCCTGAAGAATAATCANAAGAGCGAGCCCCCTGATTGGA
AGG

16505.2.edit

AGCGTGGTTCGCGGCGGAGGTCTGTGAGAGTGGCACTGGTAGAAGTTCCAGGAACCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTG
CTGGAATGGGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGCTCTGCTTTTCTTC
CAATCAGGGGCTCGCTCTTCTGATTCTTCAGGGCAATGACATAAAATTGTATATTCTGGTT
CCCGGTTCCAGGCCAGTAATAGTAGCCTCTGTGACACCAGGGCGGGGCGGAGGGACCACT
TCTCTGGGAGGAGACCCAGGCTTCTCATCTTGATGATGTANCCGGTAATCCTGGCACCGT
GGCGGCTGCCATGATACCACCAAGGAATTGGGTGTGGTGGCCAAGAAACGCAGGTTGGAT
GGTGCATCAATGGCAGTGGAGGCGTCGATNACCACAGGGGAGCTCCGANCAATTGTCAATC
AAGGTGGACAGGTAGAAATCTTGTAAATCAGGTGCCTGGTTTGTAAACCTG

16506.1.edit

TCGAGCGGCGCGCGCGGCGAGGTTCTGTACCGGTGACCTCGAGGTGGACACCACCTCAAG
AGCCTGAGCCAGCAGATCGAGAACATCCGGAGCCAGAGGGCAGCCGCAAGAACCCCGC
CCGCACCTGCCGTGACCTCAAGATGTGCACTCTGACTGGAAGAGTGGAGAGTACTGGAT
TGACCCCAACCAAGGCTGCAACCTGCAATGCCATCAAAGTCTTCTGCAACATGGAGACTGGT
GAGACCTGCGGTGTAACCCCACTCAGCCCACTGTGGCCCAAGAACTGGTACATCAGCAAG
AACCCCAAGGACAAGAACCATGTCTGGTTCCGGCAAGCATGACCGATGGATTCCAGTTC
GAGTATGGCGGCCAGGGCTCCGACCTGCGGATGTGGACCTCGGCGCGGACCACGCTAAG
CCCGAATTCAGCACACTGGCGGCGCTTACTAGTGGGATCCGAGCTTCGGTACCAAGCTTG
GCGTAATCATGGGNCATAGCTGTTCTGTNGTGAAAATGGTATTCCGCTTCACAAATTTCC
AC

16506.2.edit

AGCGTGGTTCGCGGCGGAGGTCCACATGGGCAGGCTCGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCACTCTCTCGCGAACCAGACATGCCTCTTGCTCTGGGGTTCTTGC
TGAATGACAGTTCTTCTGGGCCACACTGGGCTGAGTGGCGTACACGCAGGTCTCACCAGT
CTCCATGTTCCAGAAGACTTTGATGCCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCCAG
TACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTACGGCAGGTGCGGCGGGGT
TCTTGGCGCTGCCCTCTGGGCTCCGGATGTTCTCGATCTGCTGGCTCAAGCTCTTGAAGGGT
GGTGTCCACCTCGAGGTACGGTCACGAAACCTGCCCGGCGGCGGCTCGA

FIG. 15SS

16507.1.edit

AGCGTGGTCCGGCCGAGGTCAAGAACCCCGCCCGACCTGCCGTGACCTCAAGATGTGC
CACTCTGACTGGAAGAGTGGAGAGTACTGGATTGACCCCAACCAAGGCTGCAACCTGGAT
GCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCCGTGTACCCCACTCAGCCCA
GTGTGGCCCAAGAAGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGGT
TCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCAGGGCTCCGACCCTG
CCGATGTGGACCTGCCCGNGCCGNGCCGCTCGAAAAGCCCAATTTCAGNCACACTTGG
CCGGCCGTTACTACTG

16507.2.edit

TCGAGCGGCCCGCCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTCTATGCTCTCGCCGAACCAGACATGCCTCTTGTCTTGGGGTTCT
TGCTGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
AGTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTACGGCAGGTGCGGGCGG
GGTCTTGACCTCGGCCCGGACCACGCT

16508.1.edit

CGAGCGGCCCGCCCGGGCAGGTCCCCCCCCCTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
TT

16508.2.edit

AGCGTGGTCCCGCCCGAGGTCTGGCAATTCCTTCGACTTCTCTCCAGCCGAGCTTCCCAGAA
CATCACATATCACTGCCAAAAATAGCATTGCATACATGGATCAGGCCAGTGGAAATGTAAA
GAAGGCCCTGAAGCTGATGGGGTCAAATGAAGGTGAATTCAAGGCTGAAGGAAATAGCA
AATTCACCTACACAGTTCTGGAGGATGGTTGCACGAAACACACTGGGGAAATGGAGCAAAA
CAGTCTTTGAATATCGAACACGCAAGGCTGTGAGACTACCTATTGTAGATATTGCACCCTA
TGACATTGGTGGTCTGATCAAGAAATTTGGTGTGGACGTTGGCCCTGTTTGCTTTTTATAAA
CCAACTCTATCTGAAATCCCAACAAAAAAATTAACCTCCATATGTGNTCCTCTTGTCT
AATCTTGGCAACCAGTGCAAGTGACCGACAAAAATCCAGTTATTTATTTCCAAAATGTTTG
GAAACAGTATAATTTGACAAAGAAAAAGGATACTTCTTTTTTTGGCTGGTCCACCAAA
TACAATTCAAAAGGCTTTTTGGTTTTATTTTTTANCCAATTCCAATTCAAAATGTCTCAA
TGGNGCTTATAATAAAATAAACTTTCACCCCTTTTTNTGAT

FIG. 15TT

16509.1.edit

AGCGTGGTCCGGGCGGAGGTCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAATTTCCATTAAATACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTCAAGGACAACAGCATTAGTGTCA
AGTGGCTGCCTTCAAGTTCCCTGTTACTGGTTACAGAAGTAACCACCACTCCCCAAAATG
GACCAGGACCAACAATACTAACTGCAGGTCCAGATCAAAACAGAAAATGGACTATTG
AAGGCTTGACAGCCACAGTGGAAGTATGTGGNTAGGNGTCTATGCTCAGAAATCCCAAGCC
GGAGAAAGTCAGCCTTCTGGTTTAGACTGCAGTAACCAACATTGATCGCCCTAAAGGACT
GGNCAITCACTTGGATGGTGGATGTCCAATTC

16509.2.edit

TCGAGCGGCGCCCGGGCAGGTCTTGCAGCTCTGCAGNGTCTTCTTCACCATCAGGTGCA
GGGAATAGCTCATGGATTCCATCCTCAGGGCTCGAGTAGGTACCCCTGTACCTGGAAACTT
GCCCCCTGTGGGCTTTCCCAAGCAATTTTGATGGAATCGACATCCACATCAGNGAATGCCAG
TCCTTTAGGGCGATCAATGTTGGTTACTGCACTGTGAACCAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAGACACTAACCACATACTCCACTGTGGGCTGCAAGCCTTCAATAGTCA
TTTCTGTTTGATCTGGACCTCCAGTTTAAAGTTTTGGTGGTCTGNCCTATTTTGGGAAG
TGGGGCGTTACTCTGTAACTAGTAACAGGGGAACCTGAAGGCAGCCACTTGACACTAATG
CTGTTGTCCTGAACATCGGTCACTTGCATCTGGGGATGGTTTTGACAAATTTCTGGTTCGGCA
AATTAATGGAATGGCTTCTGCTTGGCGGGGCTGNCCTCCACGGGCCAGTGACAGCATA
C

16510.1.edit

TCGAGCGGCGCCCGGGCAGGTCTTGCAGCTCTGCAGTGTCTTCTTCACCATCAGGTGCA
GGGAATAGCTCATGGATTCCATCCTCAGGGCTCGAGTAGGTACCCCTGTACCTGGAAACTT
GCCCCCTGTGGGCTTTCCCAAGCAATTTTGATGGAATCGACATCCACATCAGTGAATGCCAG
TCCTTTAGGGCGATCAATGTTGGTTACTGCACTGTGAACCAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAGACACTAACCACATACTCCACTGTGGGCTGCAAGCCTTCAATAGTCA
TTTCTGTTTGATCTGGACCTCCAGTTTAAAGTTTTGGTGGTCTGNCCTGNNCCATTTTGGGAA
GGGGTGGTTACTCTTGTAACTAGTAACAGGGGAACCTGAAGCAGCCACTTGACACTAATG
CTGGTGGCCTGAACATCGGTCACTTGCATCTGGGATGGTTTGGTCAATTTCTGTTCCGTAAT
TAATGGGAAATGGCTTACTGGCTTGGCGGGGCTGTCTCCACGGNCAGTGACAAGCATA
ACAGGNGATGGGTATAATCAACTCCAGGTTTAAAGGCNCTGATGGTA

16510.2.edit

AGCGTGGTCCGGGCGGAGGTCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGTAAGCCAATTTCCATTAAATACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTCAAGGACAACAGCATTAGTGTCA
AGTGGCTGCCTTCAAGTTCCCTGTTACTGGTTACAGAGTAACCACCACTCCCCAAAATGG
GACCAGGACCAACAATACTAACTGCANGGTCCAGATCAAAACAGAAAATGACTATTG
AAGGCTTGACAGCCACAGTGGAGTATGTGGTTAGTGTCTATGCTCAGAAATNCCAAGCGG
AGAGAGTCAGCCTCTGGTTACACT

FIG. 15UU

16511.1.edit

TCGAGCGGCCGCGCCGGGCAGGTACGCGCTCTCAGGACGTCACCACCATGGCCTGGGCTCT
GCTCCTCCTCAGCCTCCTCACTCAGGGCACAGGGTCCTGGGCCCAGTCTGCCCTGACTCAG
CCTCCCTCCGCGTCCGGGTCTCCTGGACAGTCAGTCACCATCTCCTGCACTGGAACCAGCA
GTGACGTTGGTGCTTATGAATTTGTCTCCTGGTACCAACAACACCCAGGCAAGGCCCCCAA
ACTCATGATTTCTGAGGTCACTAAGCGGCCCTCAGGGGTCCCTGATCGCTTCTCTGGCTCC
AAGTCTGGCAACACGGCCTCCCTGACCGTCTCTGGGCTCCANGCTGAGGATGANGCTGATT
ATTACTGGAAGCTCATATGCAGGCAACAACAATTGGGTGTTGGCGGAAGGGACCAAGCT
GACCGTNCCTAAGGTCAAGCCCAAGGCTTCCCCCCTCGGTCACTCTGTTCCCACCCTCCTCT
GAAGAAGCTTTCAAGCCAACAANGNCACACTGGGTGTGTCTCATAAGTGGACTTCTACCC

16511.2.edit

AGCGTGGTCGCGGCCGAGGTCTGTAGCTTCTGTGGGACTTCCACTGCTCAGGCGTCAGGCT
CAGGTAGCTGCTGGCCGCTACTTGTGTTGCTTTGNTTGGAGGGTGTGGTGGTCTCCACT
CCCGCCTTGACGGGGCTGCTATCTGCCTTCCAGGCCACTGTACGGCTCCCGGTAGAAGT
CACTTATGAGACACACCAGTGTGGCCTTGTGGCTTGAAGCTCCTCAGAGGAGGGTGGGA
ACAGAGTGACCGAGGGGGCAGCCTTGGGCTGACCTAGGACGGTCAGCTTGGTCCCTCCGC
CGAACACCCAATTGTTGTTGCTTCCATATGAGCTGCAGTAATAATCAGCCTCATCCTCAGC
CTGGAGCCCAGAGACNGTCAAGGGAGGCCCGTGTGTTGCCAAGACTTGGGAAGCCAGANAAG
CGATCAGGGACCCCTGAGGCCCGCTTTACNGACCTCAAAAAATCATGAATTTGGGGGGCC
TTTGCTGGGNGTTGGTTGGTNACCAGNAACAAAATTTTCATAAAGCACCAACGTCACT
GCTGGTTTCCAGTGCANGAANAATGCTGAAGTGAANTGTCC

16512.1.edit

AGCGTGGTCGCGGCCGAGGTCCAGCATCAGGAGCCCCCGCCTTGCCGGCTCTGGTCACTCGCC
TTTCTTTTTGTGGCCTGAAACGATGTCAATCAATTCGAGTAGCAGAACTGCCGTCTCCACTG
CTGTCTTATAAGTCTGCAGCTTCACAGCCAATGGCTCCCATATGCCAGTTCTTTCATGTCC
ACCAAAGTACCCGTCTCACCAATTTACACCCCAAGGTCTCACAGTTCTCCTGGGTGTGCTTGG
CCCGAAGGGAGGTAAGTANACGGATGGTCTGGTCCCACAGTTCTGGATCAGGGTACGAG
GAATGACCTCTAGGGCCTGGGCAACAGCCTGTATGGACCTGCCCCGGCGGGCCCCGCTC
GA

16512.2.edit

TCGAGCGGCCGCGCCGGGCAGGTCCATACAGGGCTGTTGCCCAGGCCCTAGAGGNCATTCC
TTGTACCCTGATCCAGAACTGTGGGACCAAGCACCATCCGTCTACTTACCTCCCTTCGGGCC
AAGCACACCCAGGAGAACTGTGAGACCTGGGCTGTAAATGGNGAGACGGGTACTTTGGTG
GACATGAAGGAACCTGGGCATATGGCAGCAATGGCTGNGAAGCTGCANACTTATAAGACA
GCAGTGGAGACGGCAGTTCTGCTACTCCAAATTGATGACATCGTTTCAGGCCACAAAAAG
AAAGGCGATGACCANAGCCCGCAAGCGCGGGCTTCTGATGCTGGACCTCGGCCGCGGAC
CAGCCTT

FIG. 15VV

16514.1.edit

AGCGTGGTTCGCGGCCGAGGTCCACTAGAGGTCTGTGTGCCATTGCCCAGGCAGAGTCTCTG
CGTTACAAAGTCTAGGAGGGCTTGCTGTGCGGAGGGCCTGCTATGGTGTGCTGCGGTTCA
TCATGGAGAGTGGGGCCAAAGGCTGCGAGGTTGTGGTGTCTGGGAAACTCCGAGGACAGA
GGGCTAAATCCATGAAGTTTGTGGATGGCCTGATGATCCACAGCGGAGACCCTGTAACTA
CTACGTTGACACTGCTGTGCGCCACGTGTTGCTCANACAGGGTGTGCTGGGCATCAAGGTG
AAGATCATGCTGCCCTGGGACCCANCTGGCAAAAATGGCCCTTAAAAACCCCTTGCCNTG
ACCACGTGAACCAATTTGTGNGAACCCCAAGATGAANATACTTGCCCACC.ACCCCCATTC

16514.2.edit

TCGAGCGGGCCCCCGGGCAGGTCTGCCAAGGAGACCCTGTTATGCTGTGGGGACTGGCTG
GGGCATGGCAGGCGGCTCTGGCTTCCCACCCTTCTGTTCTGAGATGGGGGTGGTGGGCAGT
ATCTCATCTTTGGGTTCCACAATGCTCAGTGGTCAGGCAGGGGCTTCTTAGGGCCAATCT
TACCAGTTGGGTCCAGGGCAGCATGATCTTACCTTGATGCCCAGCACACCCTGTCTGAG
CAACACGTGGCGCACAGCAGTGTCAACGTAGTAGTTAACAGGGTCTCCGCTGTGGATCAT
CAGGCCATCCACAACTTTCATGGAATTTAGCCCTCTGTCTCGGAGTTTCCC.AAAACACCAC
AACCTCGCCAGCCTTTGGGCCCCACTTCTTCATGAATGAAACCGCAGCACACCAATTANCA
GGCCCTTCCGCACAGGNAAGCCCTTCCTAAGGAGTTTTGTAAACGCA.AAAAACTCTTGCCT
GGGGCAAATGGGCACACAGACCTNTANTNGGACCTTGGNCCGCGA.ACCACCGCTT

16515.1.edit

AGCGTGGTTCGCGGCCGAGGTCTCGCCCTCTGJCAAGGCTCGTGAAGATGGTC.ACCCTGG
AAAACCCCGACGACCTGCTGAGAGAGGAGTTGTTGGACCACAGGGTGCTCGTGGTTTCCC
TGGA.ACTCCTGGACTTCTGCTTCAAAGGCCATTAGGGGACACAAATGGTCTGGATGGATTG
AAGGGACAGCCCGGTGCTCCTGCTGTGAAGGTGAACCTGGNGCCCTGGTG.AAAATGGA
ACTCCAGGTCAAACAGGAGCCCCGNGGCTTCTGNGAGAGAGGACGTGTTGGTGGCCCT
GCCCCANACCTGCCCCGGCGCGCGCTCNAAAAGCCGAAATCCAGNACACTGGCGGCCGNT
ACTANTGGAATCCGAACCTTCGGTACCAAAGCTTGGCCGTAATCATGGCCATAGCTTGTTC
CTGGGGNGG.AAAATGGTATTCGGCTNCCAAATCCACACAACATACCGAACC CGGAAAGCA
TTAAAGTGTAAAAGCCCTGGGGGGGCTAAATGANGTGAGCNTAACTCNCATTTAAATGG
CGTTGCGCTTCACTGCCCGGCTTTCCAGTCCGGGNA

16515.2.edit

TCGAGCGGGCCCCCGGGCAGGTCTGGGCCAGGGCCACCAACACGTCTCTCTCACCAGGA
AGCCCACGGGCTCTGTTTACCTGGAGTTCCATTTTACCAGGGGCACCAGGTTACCCCT
TCAACACAGGAGCACC GGCTGTCCCTTCAATCCATCCAGACCAATTGTGNCCTTAATGCC
TTTGAAGCCAGGAAGTCCAGGAGTTCCAGGGA.AACCACGACCACCCTGTGCTCCAACAAC
TCCTCTCTCACCAGGTCGTCCCGGTTTTCCAGGGTGACCATCTTACCAGCCTTGCCAGGA
GGGCCAGACCTCGCCCGCGACCAAGCT

FIG. 15WW

16516.1.edit

ANCGTGGTCCGCGGCCGAGGTCTCACCAGAGGTGNCACCTACAACATCATAGTGGAGGCA
CTGAAAGACGANCAGAGGCATAAGGTTCCGGGAAGAGG

16516.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACCAATTGTATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAACTGTGTAGGGGTCAAAGCAGAGTCATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAGTTGTCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGTC
TTTCAGTGCCTCCACTATGATGTTGTAGGTGGCACCTCTGGTGAGGACCTCNGNCCNGAAC
AACGCTTAAGCCCCGNATTCTGCAGAATAATCCCATCACACTTGGCGGCCGCTTCGANCATG
CATCNTAAAAGGGGCCCCAAATTTCCCCCTTATAAGNGAANCCGTATTTNCCAAATTTCACTG
GNCCCCCGNTTTTACAAACGNCGGTGAAGTGGGGAAAAACCCTGGCGGTTACCCAACTT
TAATCGCCNTTGGCAGCACAAATCCCCCTTTTCGNCCANCNTGGGCGTAAATAACCGAAAA

16517.1.edit

ANCGNGGTCCGCGGCCGANGTNTTTTCTNTTTTTT

16518.1.edit

AGCGTGGTCCGCGGCCGAGGTCTGAGGTTACATGCCGTGGTGGTGGACGTGAGCCACGAAGA
CCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAA
GCCCGCGGAGGAGCAGTACAACAGCAGGTACCGGGNGGTGACGCTCCTCACCGTCTCTGCA
CCAGAATTGTTGAATGGCAAGGAGTACAAGNGCAAGGTTTCCAAACAAGCCNTCCCAGC
CCCCNTCGAAAAAACCAATTTCCAAAGCCAAAGGGCAGCCCCGAGAACACAGGTGTACAC
CCTGCCCCCATCCCGGGAGGAAAAGANCAANAACCNCGTTTACGCTTAAGTTGCTTGGTC
NAANGCTTTTATCCCAACGNACTTCCCCNTCGAANTGGGAAAAACCAATGGGCCAANC
CGAAAAACAATTACAANAACCCC

16518.2.edit

TCGATCCGCGGCCGCCCCGGGCAGGTGTCCGAGTCCAGCACGGGAGGCGTGGTCTTGTAGTTGT
TCTCCGGCTGCCCAATTGCTCTCCCACTCCACGGCGATGTCGCTGGGATAGAAGCCTTTGAC
CAGGCAGGTGAGGCTGACCTGCTTCTGGTCACTCTCCTCCCGGATGGGGGCAGGTTGAA
CACCTGGGGTTCTCGGGGCTTCCCTTTGGTTTGAANAATGGTTTTCTCGATGGGGGCTGG
AAGGGCTTTGTTGNAACCTTGCACCTGACTCCTTGCCATTACCCAGNCCTGGNCCAGGA
CGGNGAGGACNCTNACCACACGGAACCGGGCTGGTGGACTGCTCC

FIG. 15XX

16519.1.edit

AGCGTGGTTCGCGGACGGANGTCCTGTACAGAGTGGNACTGGTAGAAGTTCCANGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAAACAGGATGACATGAAATGATGTACTCAGAAGNGN
CCTGGAATGGGCCCCATGANATGGTTGGC

16519.2.edit

TCGAGCGGCGCCCGGGGAGGTCCACCACACCCAAATTCCTTGCTGGTATCATGGCAGCCCG
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCAGAGA
AGTGGTCCCTCGGCCCCCGCCCTGGTGTACAGAGGCTACTATTACTGGCCTGGAACCGGGA
ACCGAATATACAAATTTATGTCAATGCCCTGAAGAATAATCAGAAGAGCGAGCCCCCTGATTG
GAAGGAAAAAAGACAGAGAGCTTCCCCAACTGGTAACCCCTTCCACACCCCAATCTTCATG
GACCAGAGATCTTGGATGTTCTTCCACAGTTCAAAAGACCCCTTTCGGCACCCCCCTGG
GTATGAACCTGGGAAAANGGNANTTAANCTTTCCTGGCA

16520.1.edit

AGCGTGGTTCGCGGCGGAGGTCTGGGATGCTCCTGCTGTACAGTGAGATATTACAGGATC
ACTTACGGAGAAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAAATTTCCATTAATTACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTACAGACAACAGCATTAGTGTCA
AGTGGCTGCCTTCAAGGTNCCCTGGTACTGGGTACAGANTAACCACCCTCCAAAAAATG
GACCAGGAACCACAAAAACTTAACTGACGGGTCCAGATCAAAACAGAAATGACTATTGA
ANGCTTGACGCCACACTGGGAGTATGNGGTAGTGNCTATGCTTCAGAATCCAAGCGGA
AAAANGTCAAGCCTTNTGGGTTCAA

16520.2.edit

TCGAGCGGCGCCCGGGGAGGTCTTCCAGCTCTGCAGTGTCTTCTTACCATCAGGTGCA
GGGAATAGCTCATGGATTCCATCCTCAGGGCTCGAGTAGGTACCCCTGTACCTGGAACTT
GCCCCGTGTGGGCTTTCCTCAAGCAATTTGATGGAAATCGACATCCACATCAGTGAATGCCAG
TCCTTAGGGCGATCAATGTTGGTTACTGCAGNCTGAACCAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAGACACTAACCACATACTCCACTGTGGGCTGCAANCCCTTCAATAANNC
ATTTCTGTTTGATCTGGACC

16521.2.edit

TCGAGCGGCGCCCGGGGAGGTCTGCTGGGCTCTGGCACACGCACATGGGGGNGTTGNT
CTNATCCAGCTGCCCCAGCCCCAATGGCGAGTTTGAGAAGGTGTGCAGCAATGACAACAA
NACCTTCGACTCTTCTGCCACTTCTTTGCCACAAAGTGCACCCTGGAGGGCACCAAGAAG
GGCCACAAGCTCCACCTGGACTACATCGGGCCTTGCAAAATACATCCCCCTTGCCTGGACT
CTGAGCTGACCGAATTCCTTCTGCCATCGGGGACTCGCTCAAGAACCCTCTGGCACCC
TTGTATCANAGGGATGAAGACACNACCC

FIG. 15YY

16522.1.edit

AGCGTGGTTCGCGGCCGAGGTCTGTCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTG
GTGACCGTGGCCTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTCACAAAGC
CCAGCAACACCAAGGTGGACAAGAGAGTTGAGCCCAAATCTTGTGACAAAACCTCACACAT
GCCCACCGTGGCCAGCACCTGAACTCCTGGGGGGACCGTCAGTCTTCTCTTCCCCCGCAT
CCCCCTTCCAAACCTGCCCCGGCGGGCTCGAAAGCCGAATTCCAGCACACTGGCGGGCCG
GTACTAGTGGANCCNAACTTGGNANCCAACCTGGNGGAANTAATGGGCATAANCTGTTTC
TGGGGGGAAATTGGTATCCNGTTTACAATTCCNCACAACATACGAGCCGGAAGCATAAA
AGNGTAAAAGCCTGGGGGNGGCCTANTGAAGTGAAGCTAACTCACATTAATTNGCGTTG
CCGCTCACTGGCCCGCTTTTCCAGC

16522.2.edit

TCGAGCGGGCCCCGGGCAGGTTTGAAGGGGGATGCGGGGGAAGAGGAAGACTGACGG
TCCCCCAGGAGTTCAGGTGCTGGGCACGGTGGGCATGTGTGAGTTTTGTCACAAGATTTG
GGCTCAACTCTCTTGTCCACCTTGGTGTGCTGGGCTTGTGATCTACGTTGCAGGTGTAGGT
CTGGNGCCGAAGTTGCTGGAGGCGACGGTCACACGCTGCTGAGGGAGTAGAGTCCTGA
GGACTGTANGACAGACCTCGGCCGNGACCACGCTAAGCCGAATTCTGCAGATATCCATCA
CACTGGCGGCCGCTCCGAGCATGCATTTTAGAGG

16523.1.edit

AGCGTGGNCGCGGACGANCAACAACCC

16523.2.edit

TCGAGCGGGCCCCGGGCAGGNCCACATCGGCAGGGTCCGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTCACTGCTTTGCCGAACCAGACATGCCTCTTGTCTTGGGGTTCTT
GCTGATGNACCAGTTCTTCTGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCA
GTCTCCATGTTGCAGAAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCC
AGTACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTCACGGCAGGTGCGGGCGGG
GTTCTTGACCT

16524.1.edit

AGCGTGGTTCGCGGCCGAGGTCCAGCCTGCAGATAANGGTGAAGGTGGTCCCCCGGACTT
CCAGGTATACCTGGACCTCGTGGTAGCCCTGGTGAGAGAGGTGAAACTGGCCCTCCACGA
CCTGCTGGTTTCCCTGGTCTCCTGGACACAATGGTGAACCTGGNGGTAAAGGAGAAAGA
GGGCTCCGNTGANAAAGGTGAAGGAGCCCTCCTGNATTGGCAGGGGCCCCANGACTT
AGAGGTGGAGCTGGCCCCCTGGCCCCGAAGGAGCAAAGGGTGCTGCTGGTCTCTCTGGG
CCACCTGG

FIG. 15ZZ

16524.2.edit

TCGAGCGGCCCGCCCGGGCAGGTCTGGGCCAGGAGGACCAATAGGACCAGTAGGACCCCTT
GGGCCATCTTTCCCTGGGACACCATCAGCACCTGGACCGCCTGGTTCACCCTTGTACCCCTT
TGGACCAGGACTTCCAAGACCTCCTCTTCTCCAGGCATTCTTGCAGACCAGGAGTACCA
NCAGCACCAGGTGGCCCAGGAGGACCAAGCAGCACCCCTTCTCCTTCGGGACCAGGGGGA
CCAGCTCCACCTCTAAGTCCTGGGGCCCTGCCAATCCAGGAGGGCCTCCTTACCTTTCTC
ACCCGGAGCCCTCTTCT

16526.1.edir

TCGAGCGGCCCGCCGGCCAGGTCCACCGGGATATTCGGGGGTCTGGCAGGAATGGGAGGC
ATCCAGAACGAGAAGGAGACCATGCAAAAGCCTGAACGACCGCCTGGCCTCTTACCTGGAC
AGAGTGAGGAGCCTGGAGACCGACAACCGGAGGTGGAGAGCAAAAATCCGGGAGCACTT
GGAGAAGAAGGGACCCCAGGTCAAGAGACTGGAGCCATTACTTCAAGATCATCGAGGACCT
GAGGGCTCANATCTTCGCAAAATACTGCNGACAATGCCCG

16526.2.edit

ATGCGNGGTGCGGGCCGANGACCA.NCTCTGGCTCATACTTGACTCTAAAGNCNTCACCAG
NANTTACGGNCAFTGCCAA.TCTGCAGAACGATGCGGGCA.TTGCCGCANT.ATTTGCGAAG
ATCTGAGCCCTCAGGNCCTCGATGATCTTGAAGTAANGGCTCCAGTCTCTGACCTGGGGTC
CCTTCTTCTCCAAGTGCTCCCGGATTTTGCTCTCCAGCCTCCGGTTCTCGGTCTCCAAGNCT
TCTC.ACTCTCTCCAGGAA.AGACGCCAGCGGNGCATCAGGGCTTTTGATGGACT

16507.1.edir

AGCGTGGTCCGCGCCGAGGTGTACAAGCT

1652-2.edic

TCGAGCGGCCGCCCGGGCAGGTCTGCCAACACCAAGATTGCCCCCGCCGCATCCACACAG
GTTNGTGTGCGGGGAGGTAACAAAGAAATACCGTCGCCCTGAGGNTGGACGNGGGGAATTTT
TCCTGGGGCTCAGAGTGTGTACTCGTAAAAACAAGGATCATCGATGTTGTCTACAATGCAT
CTAATAACGAGCTGGTTCGTACCAACACCCCTGGTGAAGAATTGCATCGTGCTCATNGACA
GCACACCGTACCGACAGTGGGTACCGAAGTCCCCTATGCNCT

FIG. 15.44A

16523.1.edit

TCGAGCGGCGCGCGGGCAGGTCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGA
AGTGGTCCCTCGGCCCCCGCCCTGGTGTACAGAGGCTACTATTACTGGCCTGGAACCGGA
ACCGAATATACAATTTATGTCAATTGCCCTGAAG

16523.2.edit

AGCGTGNTCNCGGCCGAGGATGGGGAAGCTCGNCTGTCTTTTCCTTCCAATCAGGGGCTN
NNTCTTCTGATTATTCTTCAGGGCAANGACATAAATTGTATATTCGGNTCCCGTTCCAGN
CCAGTAATAGTAGCCTCTGTGACACCAGGGCGGGGCGGAGGGACCACTTCTCTGGGAGGA
GACCCAGGCTTCTCATACTTGATGATGAAGCCGGTAATCCTGGCACGTGGGCGGCTGCCAT
GATACCACCAANGAATTGGGTGTGGTGGACCTGCCCGGGCGGCGCTCGAAAANCCGAA
TTCNTGCAAGAAATATCCATCACACTTGGGCGGGCCGNTCGAACCATGCATCNTAAAAGGG
CCCCAATTTCCCCCTATTAGGNGAAGCCNCATTTAACAAATTCCACTTGG

16529.1.edit

TCGAGCGGCGCGCGGGCAGGTCTCGCGGTGGCACTGGTGATGCTGGTCCTGTTGGTCCCC
CCGGCCCTCCTGGACCTCCTGGTCCCCCTCGTCTCCAGCGCTGGTTTCGACTTCAGCTTC
CTGCCCCAGCCACCTCAAGAGAAGGCTCACGATGGTGGCCGCTACTACCGGGCTGATGAT
GCCAATGTGGTTCTGTACCGTGACCTCGAGGTGGACACCACCTCAAGAGCCTTGAGCCA
GCAGAATCGAAAACATTCGGAACCCAAGAAGGGCAAGCCCGCAAGAAACCCCGCCCGC
ACCTGGCCGNGAACCTCCAAGAANGTGCCACNTCTTGACTGGGAAAAAAGGGAAAAANT
ACTTGGAAATTGGAC

16529.2.edit

AGCGTGGTCCGGCGCGGAGGTCCACATCGGCAGGGTGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCAATGCTCTCGCCGAACAGACATGCCTCTTGTCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACCGAGGTCTCACCACT
CTCCATGTTGCAGAAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCCAG
TACTCTCCACTCTTCCACTCAGAAGTGGCACATCTTGAGGTACGGCAGGGTGGGGCGGG
GTTCTTGGCGGCTGCCCTTCTGGGCTCCCGGAATGTTCTNNGAACTTGCTGG

FIG. 15BBB

16530.1.edit

AGCGTGGTCGCGGCCGAGGTCCACTAGAGGTCTGTGTGCCATTGCCCAGGCAGAGTCTCTG
CGTTACAACTCCTAGGAGGGCTTGCTGTGCGGAGGGCCTGCTATGGTGTGCTGCGGTTCA
TCATGGAGAGTGGGGCCAAAGGCTGCGAGGTTGTGGTGTCTGGGAACTCCGAGGACAGA
GGGCTAAATCCATGAAGTTTGTGGATGGCCTGATGATCCACAGCGGAGACCCTGTAACTA
CTACGTTGACACTTGCTTGTCGCCACGTGTTGCTCANACANGGGTGGGCTGGGCATCAAG
GNG

16530.2.edit

TCGAGCGGCCCGCCCGGGCAGGTCTGCCAAGGAGACCCTGTTATGCTGTGGGGACTGGCTG
GGGCATGGCAGGCGGCTCTGGCTTCCCACCCTTCTGTTCTGAGATGGGGGTGGTGGGCAGT
ATCTCATCTTTGGGTTCCACAATGCTCAGTGGTCAGGCAGGGGCTTCTTAGGGCCAATCT
TACCAGTTGGGTCCCAGGGCAGCATGATCTTCACTTGTATGCCAGCACACCCTGTCTGAG
CAACAGTGGGCGACAGCAAGTGTCAACGTAAAGTAAGTTAACAGGGTCTCCGCTGTGGAT
CATCAGGCCATCCACAACTTCATGGATTTAACCCTCTGTCTCGGAG

16531.1.edit

TCGAGCGGCCCGCCCGGGCAGGTCTTTCAGAGGTCCAAGGTCCACTGTGGAGGTCCCAGG
AGTGCTGGTGGTGGCCACAGAGGTCCGATGGGTGAAACCATTGACATAGAGACTGTTCTT
GTCCAGGGTGTAGGGGCCAGCTCTTTCATGCCATTGGCCAGTTGGCTCAGCTCCCAGTAC
AGCCGCTCTCTGTTGAGTCCAGGGCTTTGGGGTCAAGATGATGGATGCAGATGGCATCCA
CTCCAGTGGCTGCTCCATCCTTCTCGGACCTGAGAGAGGTCACTCTGCAGCCAGAGTACAG
AGGGCCAACACTGGTGTCTTTGAATA

16531.2.edit

ACCGTGGTCGCGGCCGAGGTCTGTACTCGGAGCTAAGCAAAGTACCAATGACATTGAAG
AGCTGGGGCCCTACACCCTCGACAGGAACAGTCTCTATGTCAATGGTTTCACCCATCAGAG
CTCTGTGNCCACCACCAGCACTCTCGGACCTCCACAGTGGATTTGAGAACCTCAGGGACT
CCATCCTCCCTCTCCAGCCCCACAATTATGGCTGCTGGCCCTCTCCTGGTACCATTACCCT
CAACTTCACCATCACCAACCTGCAGTATGGGGAGGACATGGGTCAACCCTGNCTCCAGGAA
GTTCAACACCACA

16532.1.edit

TCGAGCGGCCCGCCCGGACAGGTCTGGGCGGATACCACCGGGCATATTTTGGAATGGATGA
GGTCTGGCACCCCTGAGCAGTCCAGCGAGGACTTGGTCTTAGTTGAGCAATTTGGCTAGGAG
GATAGTATCCAGCAGGNTCTGAGNCTGTGGGATAGCTGCCATGAAGTAACCTGAAGGAG
GTGCTGGCTGGTANGGGTTGATTACAGGGTTGGGAACAGCTCGTACACTTGCCATTCTCTG
CATATACTGGTTAGTGAGGTGAGCCTGGCCCTCTTCTTTTG

FIG. 15CCC

01_16558.3.edit

AGCGTGGTCGCGGGCCGAGGTGAGCCACAGGTGACCGGGGCTGAAGCTGGGGCTGCTGGNC
CTGCTGGTCTG

02_16558.4.edit

CAGCNGCTCCNACGGGGCCTGNGGGACCAACAACACCGTTTTACCCCTTAGGCCCTTTGGC
TCCTCTTTCTCCTTTAGCACCAAGTTGACCAGCAGCNCCANCAGGACCAGCAAATCCATTG
GGGCCAGCAGGACCGACCTCACCACGTTACCAAGGGCTTCCCCGAGGACCAGCAGGACCA
GCAGGACCAGCAGCCCCAGCTTCGCCCCGGTCACCTGTGGCTCACCTCGGCCGCGACCAG
CT

03_16535.1.edit

TCGAGCGGTGCGCCCGGGCAGGTCCACCGGGATAGCCGGGGGTCTGGCAGGAATGGGAGGC
ATCCAGAACGAGAAGGAGACCATGCAAAAGCCTGAACGACCGCCTGGCCTCTTACCTGGAC
AGAGTGAGGAGCCTGGAGACCGANAACCGGAGGCTGGANAGCAAAATCCGGGAGCACTT
GGAGAAGAAGGGACCCCAGGTCAAGAGACTGGAGCCATTACTTCAAGATCATCGAGGGA
CCTGGAGG

04_16535.2.edit

AGCGNGGTCGCGGGCCGAGGTCCAGCTCTGTCTCATACTTGACTCTAAAGTCATCAGCAGCA
AGACGGGCAATTGTCAATCTGCAGAACCAATGCGGGCATTGTCCGCAGTATTTGCCAAGATCT
GAGCCCTCAGGTCTCTGATGATCTTGAAGTAATGGCTCCAGTCTCTGACCTGGGGTCCCTT
CTTCTCCAAGTGCTCCCGCAATTTGCTCTCCAGCCTCCGGTTCTCGGTCTCCAGGCTCCTCA
CTCTGTCCAGGTAAGAAGGCCCAGGGGGTCTTCAGGCTTTGCATGGTCTCCTTCTCGTTCT
GGATGCCTCCCATTCCTGCCAGACCC

05_16536.1.edit

TCGACCGGGCCGCGGGCCAGGTCAAGGAAGCACATTEGTCTTAGAGCCACTGCCTCCTGGA
TTCCACCTGTGCTGCGGACATCTCCAGGGAGTGCAGAAGGGAAGCAGGTCAAACCTGCTCA
GATCAGTCAGACTGGCTGTTCTCAGTTCTACCTGAGCAAGGTCACTCTGCAGCCAGAGTA
CAGAGGGCCAACACTGGTGTCTTGAACAAGGGCTTGAGCAGACCCTGCAGAACCCTCTTC
CGTGGTGTGAACCTCCTGGAACCAGGGTGTTCATGTTTTCTCATAATGCAAGGTTG
GTGATGG

FIG. 15DDD

07_16537.1.edit

AGCGTGGTCGCGGCCGAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTTCATGCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACCGCAGGTCTCACCAG
TCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCCA
GTA CTCTCCACTCTTCCAGTCAGAAGTGGGCACATCTTGAGGTCACCGGCAGGTGCCGGGC
CGGGGGTTCTTGGCGCTTGCCCTCTGGGCTCCGGATGTTCTCGATCTGCTTGGCTCAGGCTC
TTGAGGGTGGGTGTCCACCTCGAGGTCACGGTCACCGAAACCTGCCCGGGCGGCCCGCTC
GA

08_16537.2.edit

TCGAGCGGTGCGCCGGGCAGGTTTCGTGACCGTGACCTCGAGGTGGACACCACCCTCAAG
AGCCTGAGCCAGCAGATCGAGAACATCCGGAGCCAGAGGGCAGCCGCAAGAACCCCGC
CCGCACCTGCCGTGACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGAT
TGACCCCAACCAAGGCTGCAACCTGGATGCCATCAAAGTCTTCTGCAACATGGAGACTGGT
GAGACCTGCGTGTACCCCACTCAGCCCAGTGTGGGCCCAGAAGAACTGGTACATCAGCA
AGGAACCCCAAGGACAAGAGGCATTGTCTTGGTTCGGCGAGNAGCATGACCCGATGGATT
CCAGTTTCGAGTATTGGCGGCCAGGGCTTCCCGACCCTTGCCGATGTGGACCTCGGCCGCG
ACCACCGCT

FIG. 15EEE

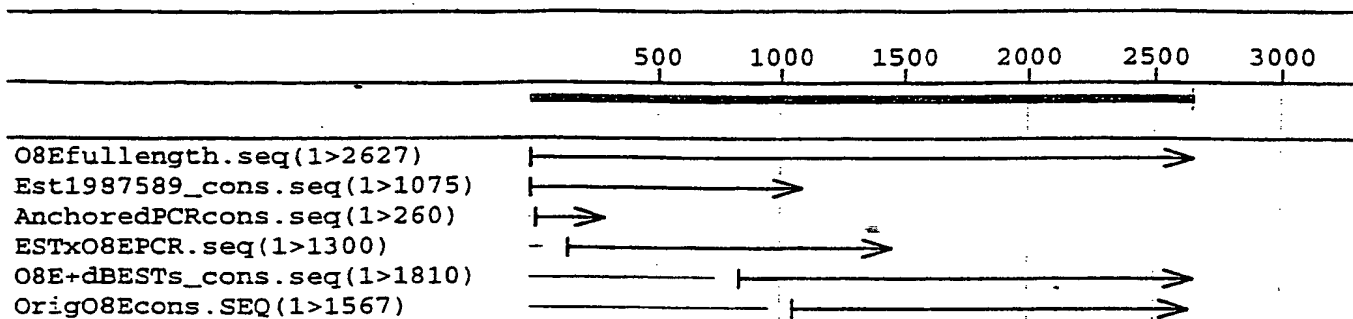


Fig. 16

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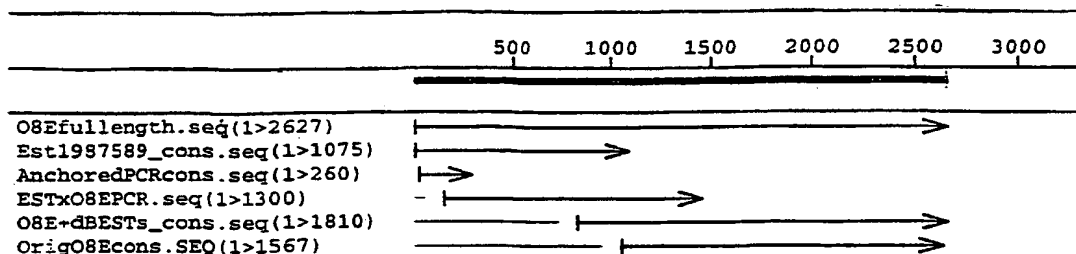
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ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER



(57) Abstract: Compositions and methods for the therapy and diagnosis of cancer, such as ovarian cancer, are disclosed. Compositions may comprise one or more ovarian carcinoma proteins, immunogenic portions thereof, polynucleotides that encode such portions or antibodies or immune system cells specific for such proteins. Such compositions may be used, for example, for the prevention and treatment of diseases such as ovarian cancer. Methods are further provided for identifying tumor antigens that are secreted from ovarian carcinomas and/or other tumors. Polypeptides and polynucleotides as provided herein may further be used for the diagnosis and monitoring of ovarian cancer.

WO 00/36107 A3

INTERNATIONAL SEARCH REPORT

Inter national Application No
PCT/US 99/30270

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C07K14/47 C12N15/62 C12N15/11 C12Q1/68
G01N33/68 C07K16/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K C12Q G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	K. ISHIKAWA ET AL.: "Prediction of the coding sequences of unidentified human genes. The complete sequences of 100 new cDNA clones from brain which can code for large proteins in vitro." DNA RES., vol. 5, 1998, pages 169-176, XP002121149 the whole document --- -/--	3,4,6



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the international search

15 May 2000

Date of mailing of the international search report

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Name and mailing address of the ISA

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Hix, R

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/30270

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>MA J ET AL: "USE OF ENCAPSULATED SINGLE CHAIN ANTIBODIES FOR INDUCTION OF ANTI-IDIOTYPIC HUMORAL AND CELLULAR IMMUNE RESPONSES" JOURNAL OF PHARMACEUTICAL SCIENCES,US,AMERICAN PHARMACEUTICAL ASSOCIATION. WASHINGTON, vol. 87, no. 11, November 1998 (1998-11), pages 1375-1378, XP000877492 ISSN: 0022-3549 the whole document</p> <p>---</p>	
A	<p>GILLESPIE A M ET AL: "MAGE, BAGE AND GAGE: TUMOUR ANTIGEN EXPRESSION IN BENIGN AND MALIGNANT OVARIAN TISSUE" BRITISH JOURNAL OF CANCER,GB,LONDON, vol. 78, no. 6, September 1998 (1998-09), pages 816-821, XP000892404 ISSN: 0007-0920 the whole document</p> <p>---</p>	
A	<p>PEOPLES G E ET AL: "OVARIAN CANCER-ASSOCIATED LYMPHOCYTE RECOGNITION OF FOLATE BINDING PROTEIN PEPTIDES" ANNALS OF SURGICAL ONCOLOGY,US,RAVEN PRESS, NEW YORK, NY, vol. 5, no. 8, December 1998 (1998-12), pages 743-750, XP000892412 ISSN: 1068-9265 the whole document</p> <p>---</p>	
A	<p>BOOKMAN M A: "BIOLOGICAL THERAPY OF OVARIAN CANCER: CURRENT DIRECTIONS" SEMINARS IN ONCOLOGY,US,BETHESDA, MD, vol. 25, no. 3, June 1998 (1998-06), pages 381-396, XP000892403 the whole document</p> <p>---</p>	
A	<p>KOEHLER S ET AL: "IMMUNOTHERAPIE DES OVARIALKARZINOMS MIT DEM MONOKLONALEN ANTI-IDIOTYPISCHEN ANTIKOERPER ACA125 - ERGEBNISSE DER PHASE-LB-STUDIE. IMMUNOTHERAPY OF OVERIAN CARCINOMA WITH THE MONOCLONAL ANTI-IDIOTYPE ANTIBODY ACA125 - RESULTS OF THE PHASE LB STUDY" GEBURTSHILFE UND FRAUENHEILKUNDE,XX,XX, vol. 58, no. 4, April 1998 (1998-04), pages 180-186, XP000892407 ISSN: 0016-5751 the whole document</p> <p>-----</p>	

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/30270

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 18 to 20, 27, 28, 35 to 41, 46 to 48 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-68 (partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-68 {partially}

An isolated polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein and encoded by SEQ ID NO:1, expression vectors comprising said polynucleotide, host cells transformed by said vector, pharmaceutical compositions and vaccines comprising the polypeptide encoded by said polynucleotide according to claims 9 to 17, 23 to 25 and 29 to 34, and methods of using said polynucleotides for the treatment and/or diagnosis of ovarian cancer and diagnostic kits comprising said polynucleotide.

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